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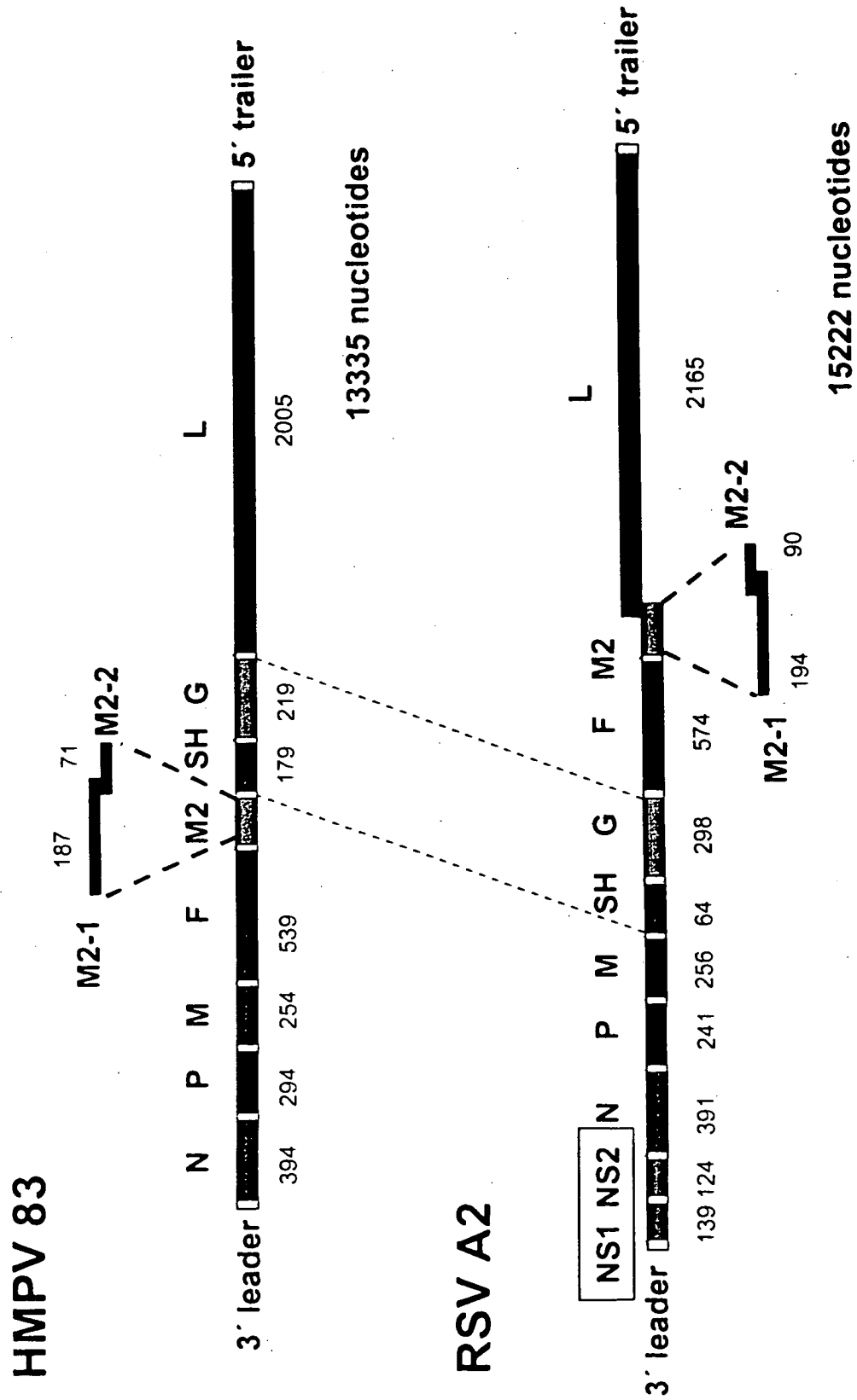
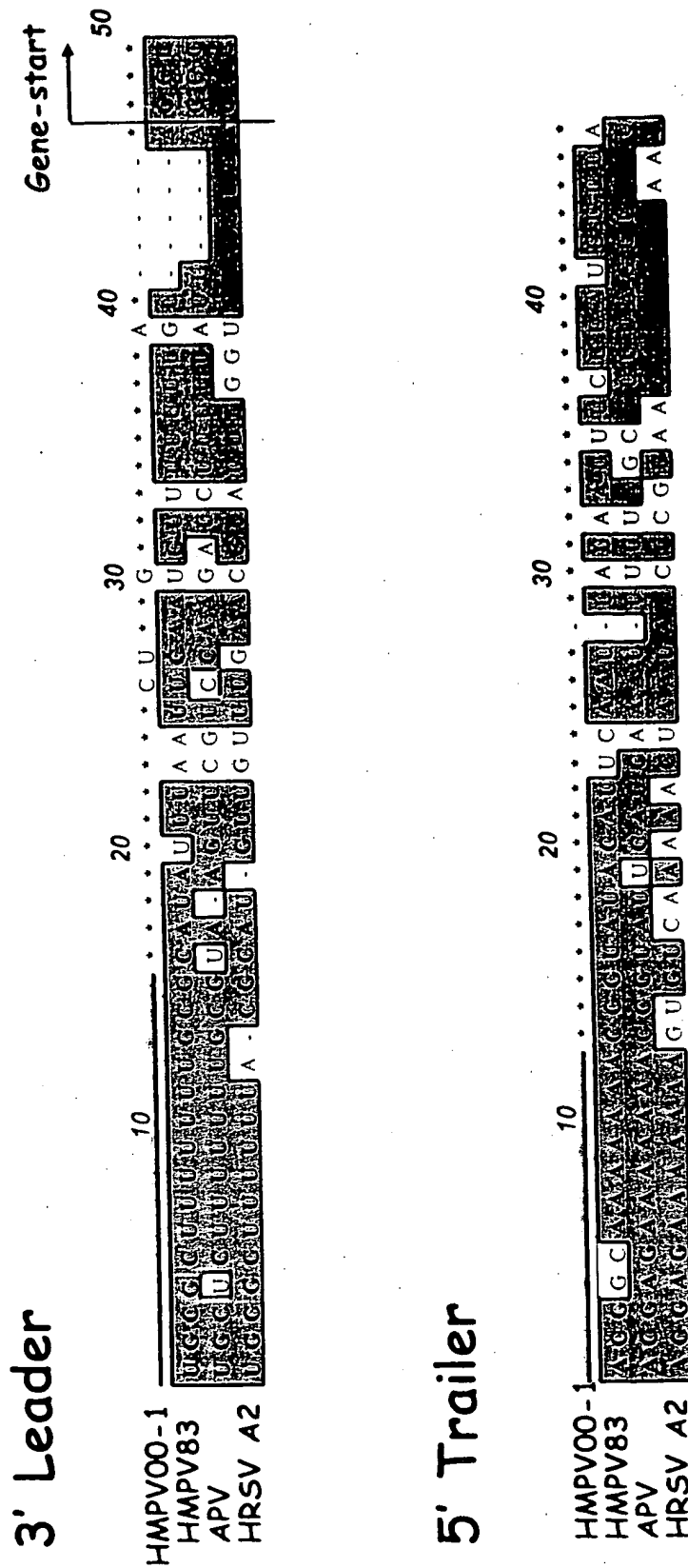


Fig. 1



— Sequences previously unknown for any human metapneumovirus

Fig. 2

Examples of differences between HMPV 83 and HMPV 00-1

Attorney Ref. No. 4239-67
 Inventors: Peter L. Collins, Stephanie Biacchesi, Buchholz, Brian R.
 Murphy, and Mario H. Skiadopoulos
 Title: RECOMBINANT HUMAN METAPNEUMOVIRUS AND ITS USE
 Express Mail No. EV331582468US
 DRAWINGS: Sheet 4 of 66 Sheets

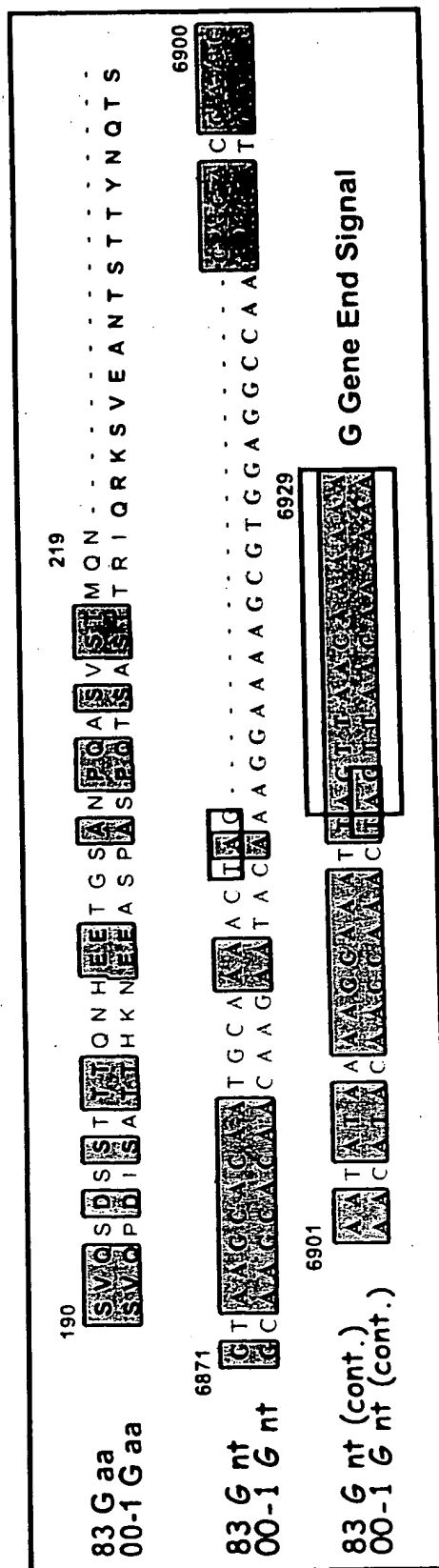


Fig. 4

Amino acid identity between HMPV83 and other Pneumoviruses for the indicated proteins

	N	P	M	F	M 2-1	M 2-2	G	SH	L
HMPV 00-1	99	95	99	98	98	96	70	85	99
HMPV 97-82	95	85	97	94	ND	ND	ND	ND	ND
APV A	70	58	77	68	73	25	12	20	64
APV B	69	53	76	67	71	27	ND	20	ND
APV C	88	68	87	81	83	56	ND	ND	ND
HRSV A2	41	31	38	36	36	12	15	6	46
HRSV B	41	31	37	35	35	8	15	6	46
BRSV	41	31	37	37	35	14	19	10	46
PVM	45	28	38	40	36	12	ND	8	ND

ND: Comparison not done, usually because sequence was unavailable

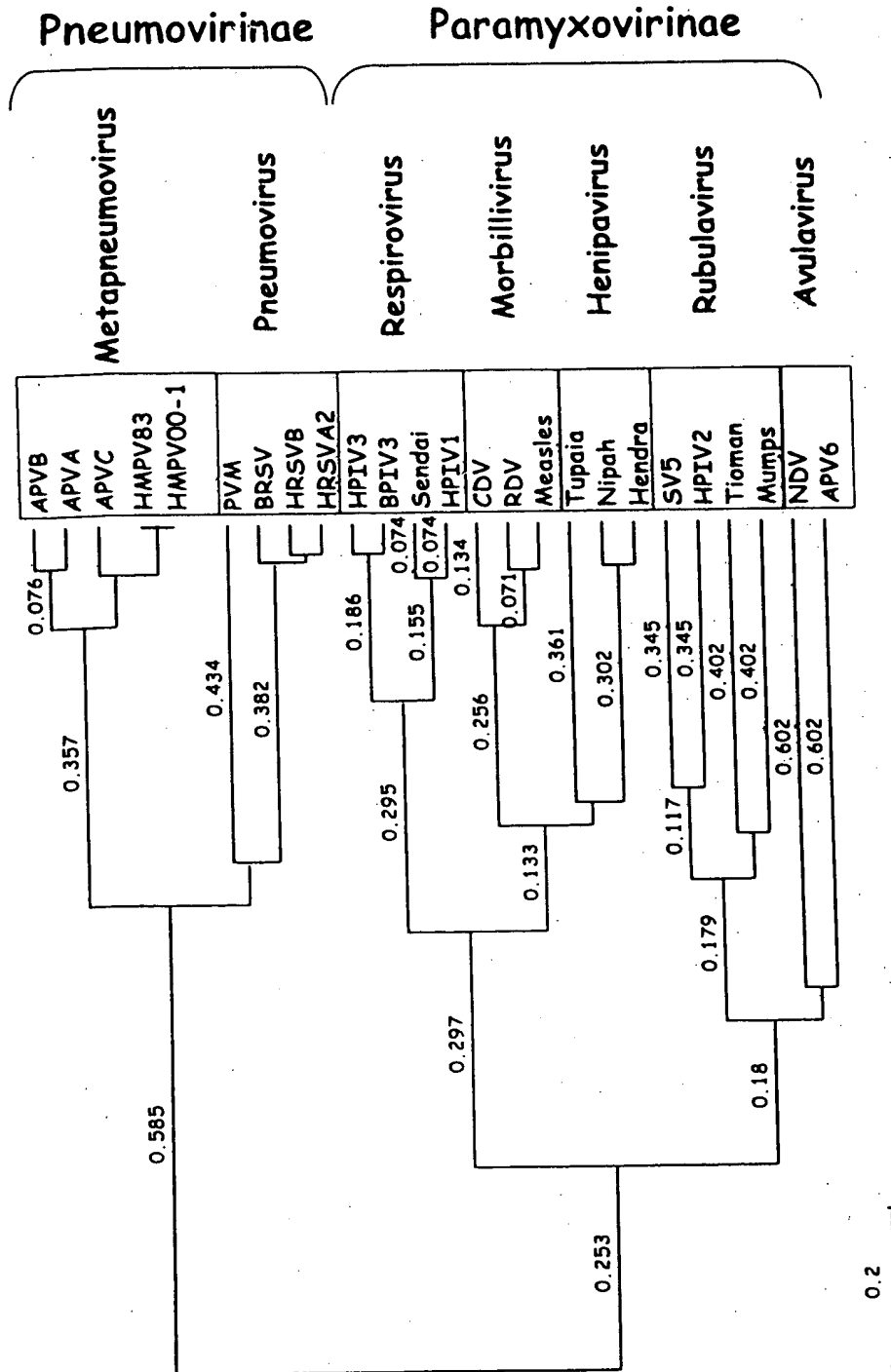


Fig. 6

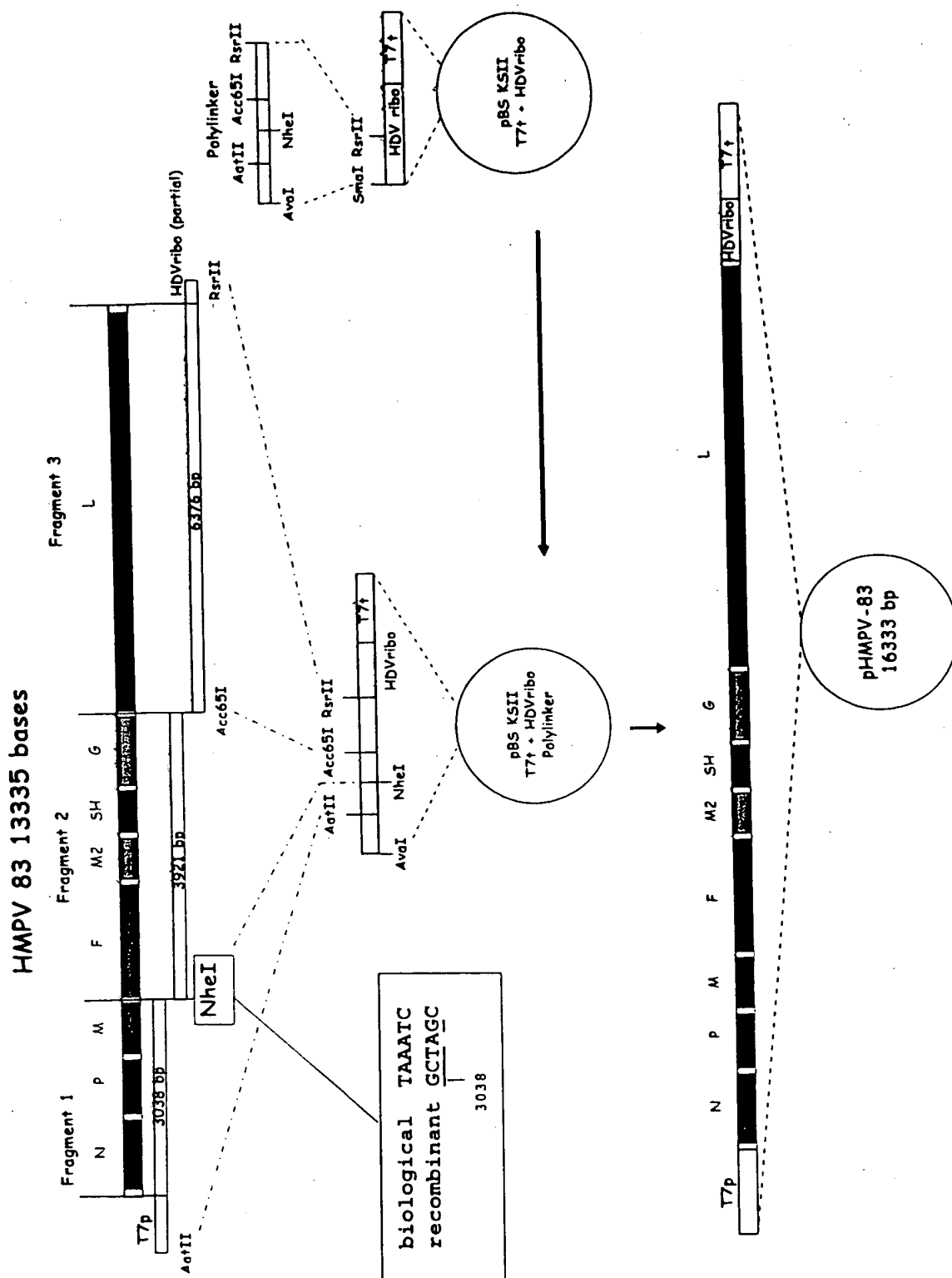


Fig. 7

Gene Start Signal

	1	5	10	15
N	tacaaaaaacat	GGGACAAAGTGAAA	ATGtctcttc	
P	taataaaaaagt	GGGACAAAGTCAAA	ATGtcattcc	
M	aaaaataaaaaat	GGGACAAAGTGAAA	ATGgagtcct	
F	atcaatcaagaac	GGGACAAATAAAA	ATGtcttgga	
M2	taaaaataaaattt	GGGACAAATCATA	ATGtctcgca	
SH	aacacatcagagt	GGGATAAGTGACA	ATGataacat	
G	aaaacaaaaatat	GGGACAAAGTAGTT	ATGgaggtga	
L	aaacagcatccaa	GAGACAAATAGCA	ATGgatcctc	

CONSENSUS

...at GGGACAAAGTGAAA ATGtc...
 GC A T A AGTT ga
 ta C C at

Gene End Signal

	1	5	10
N	ttatg	AGTAATTAAAAA	gt
P	tatgt	AGTTTAATAAAAA	taaaaat
M	atddd	AGTTATATAAAAA	tcaagttagaat a
F	cagtt	AGTTAATTAAAAA	taaaaataaaatt t
M2	actta	AGTTAGTAAAAA	cacatcagagt
SH	agttt	AGTTATTTTAAAAA	tatttgagaata g
G	aaatt	AGTTAACAAAAAA	tacgagatagct c
L	atgat	AGTTAATTAAAAA	taaaaaattaaaa a

CONSENSUS

...tt AGTTAATTAAAAA ta...
 ag ATTAAT CC
 ga GC gt

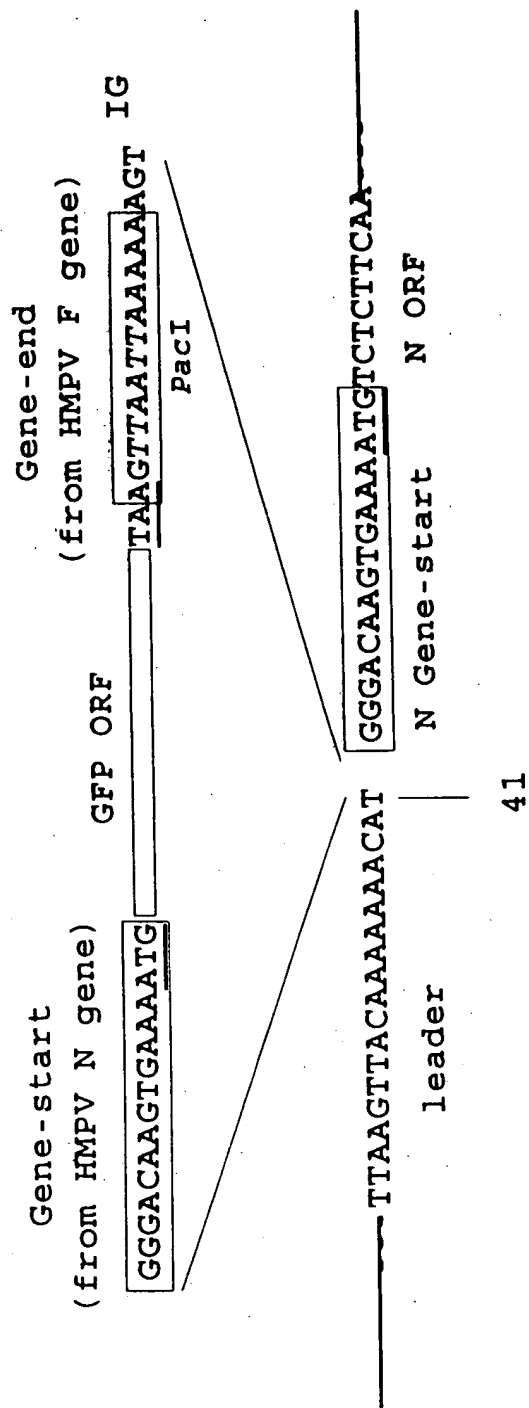


Fig. 9

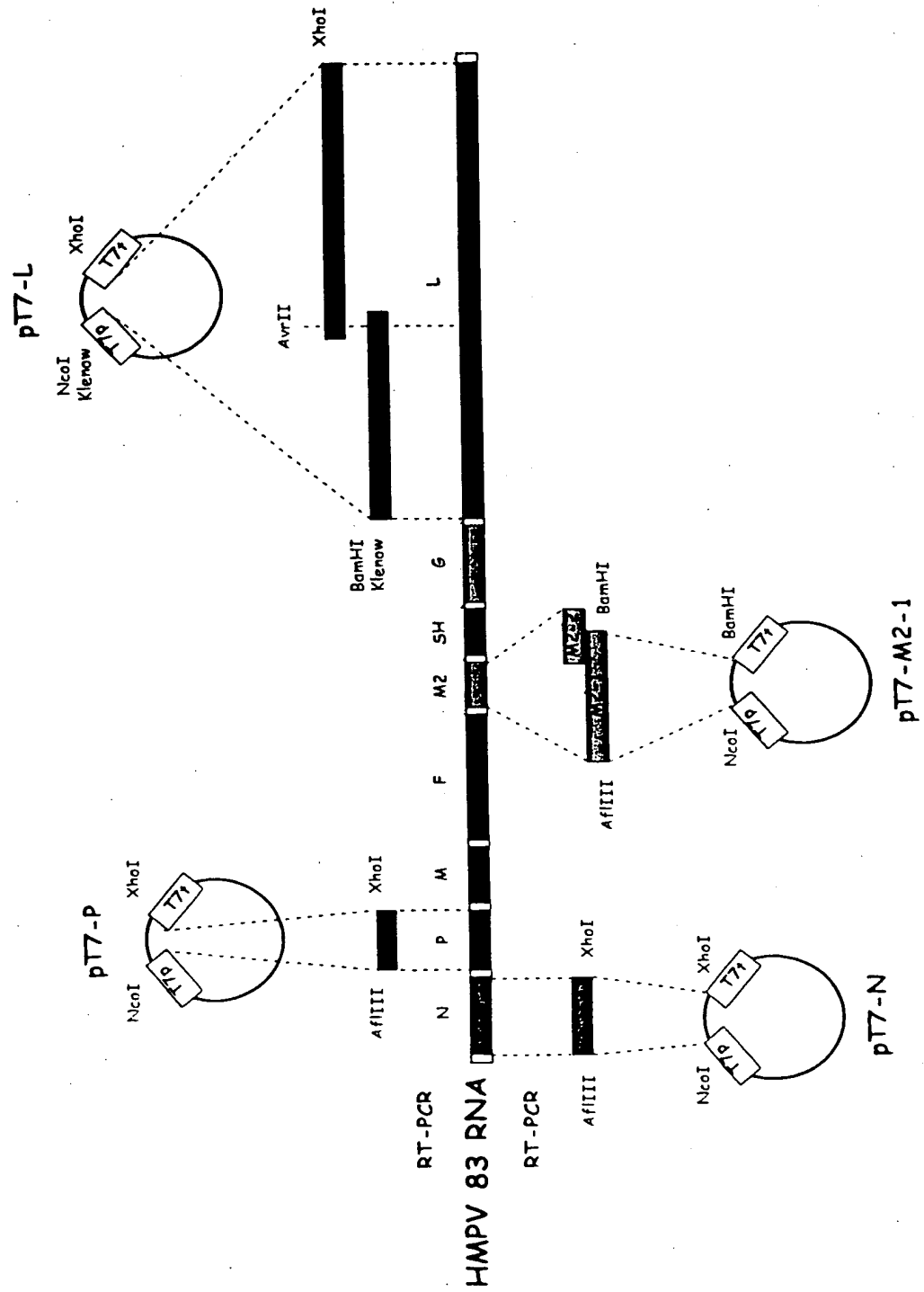


Fig. 10

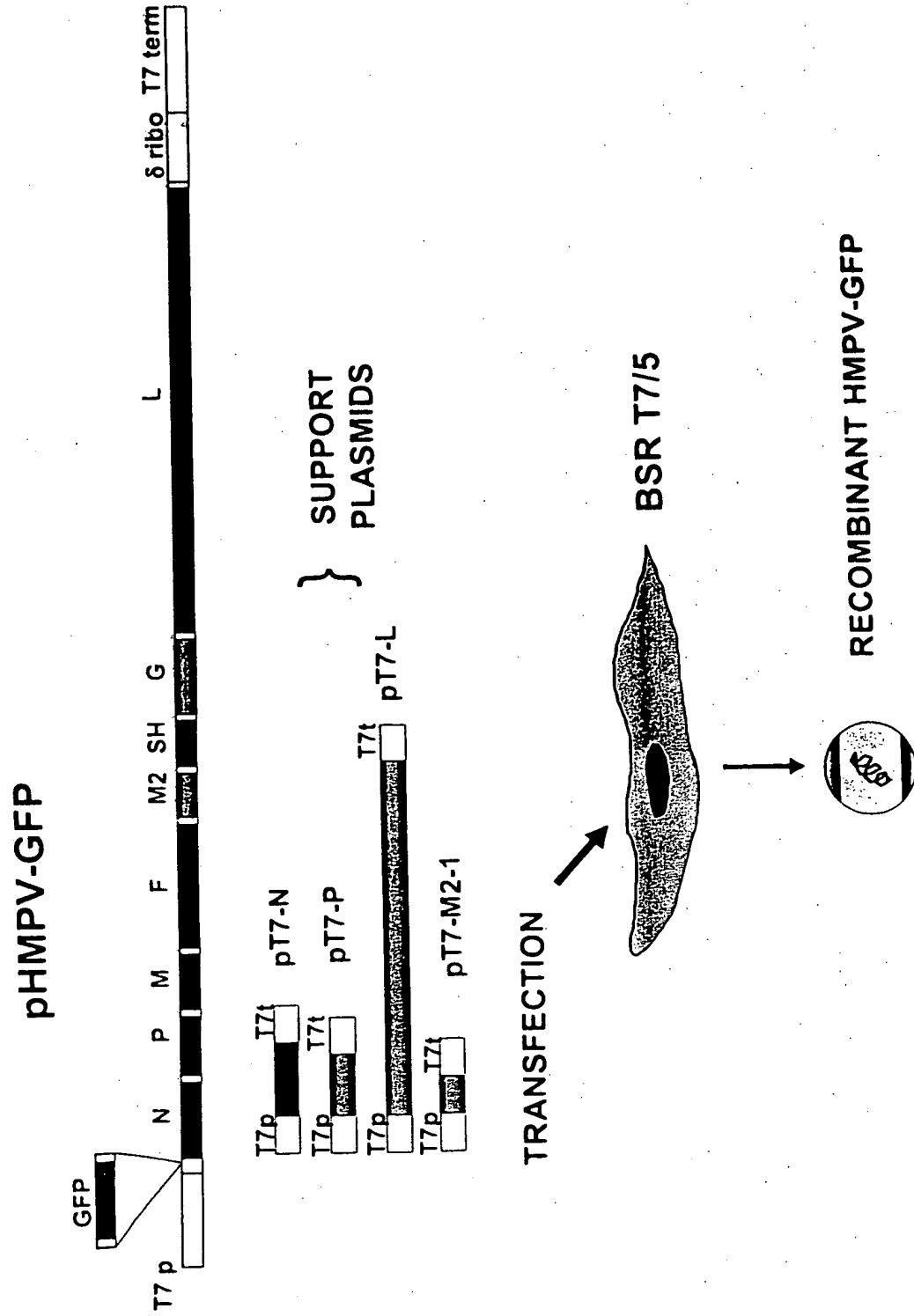


Fig. 11

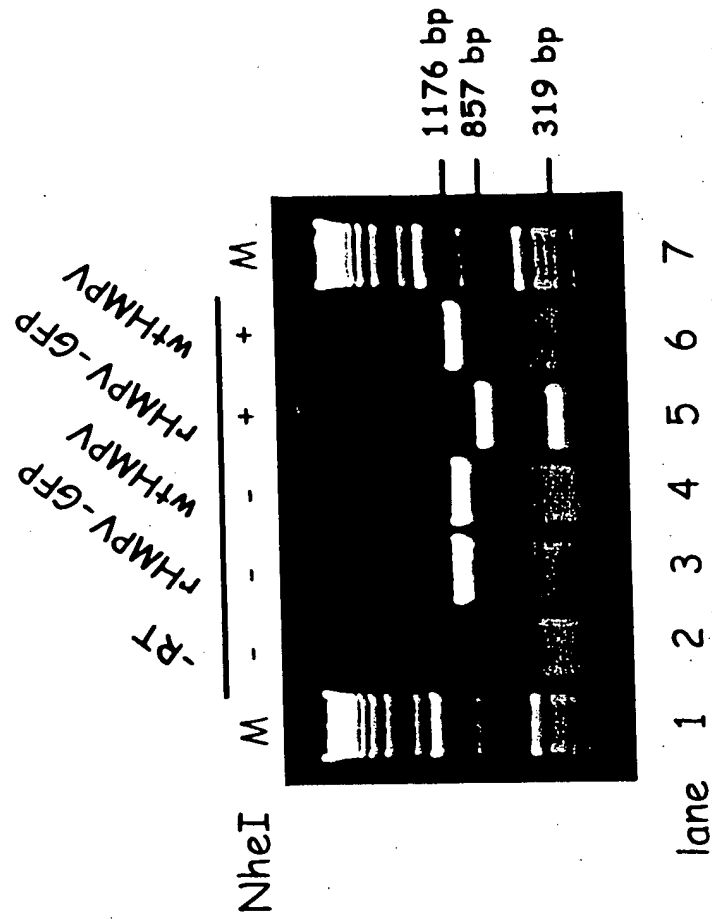


Fig. 12A

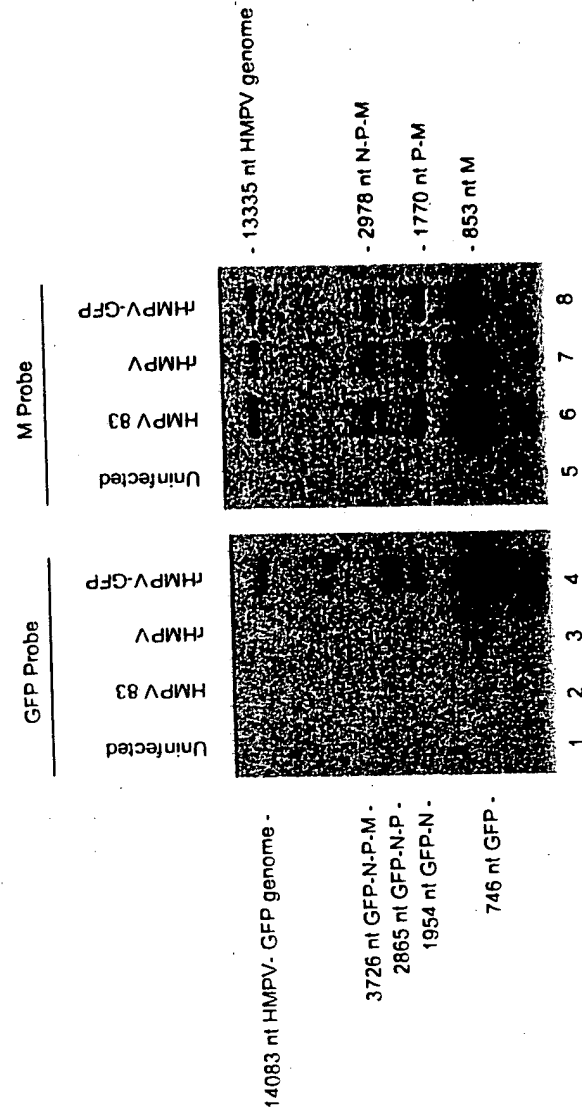


Fig. 12B

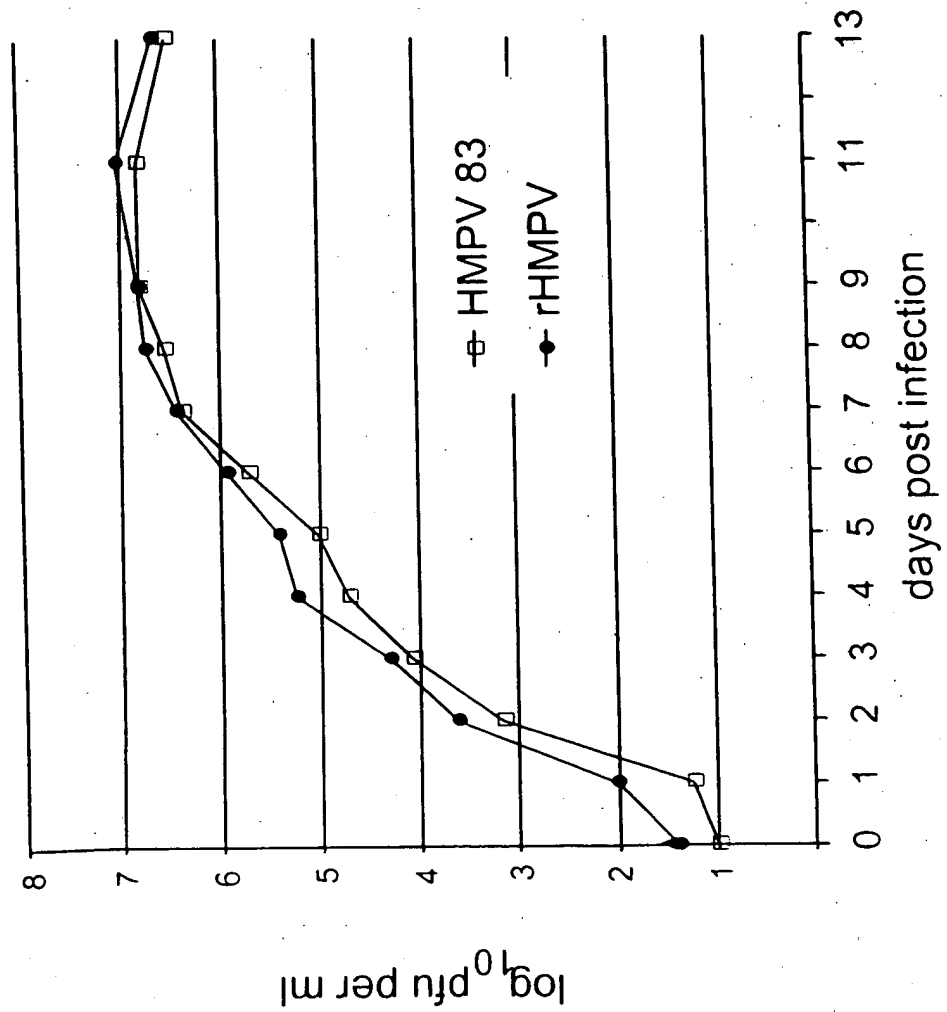


Fig. 13

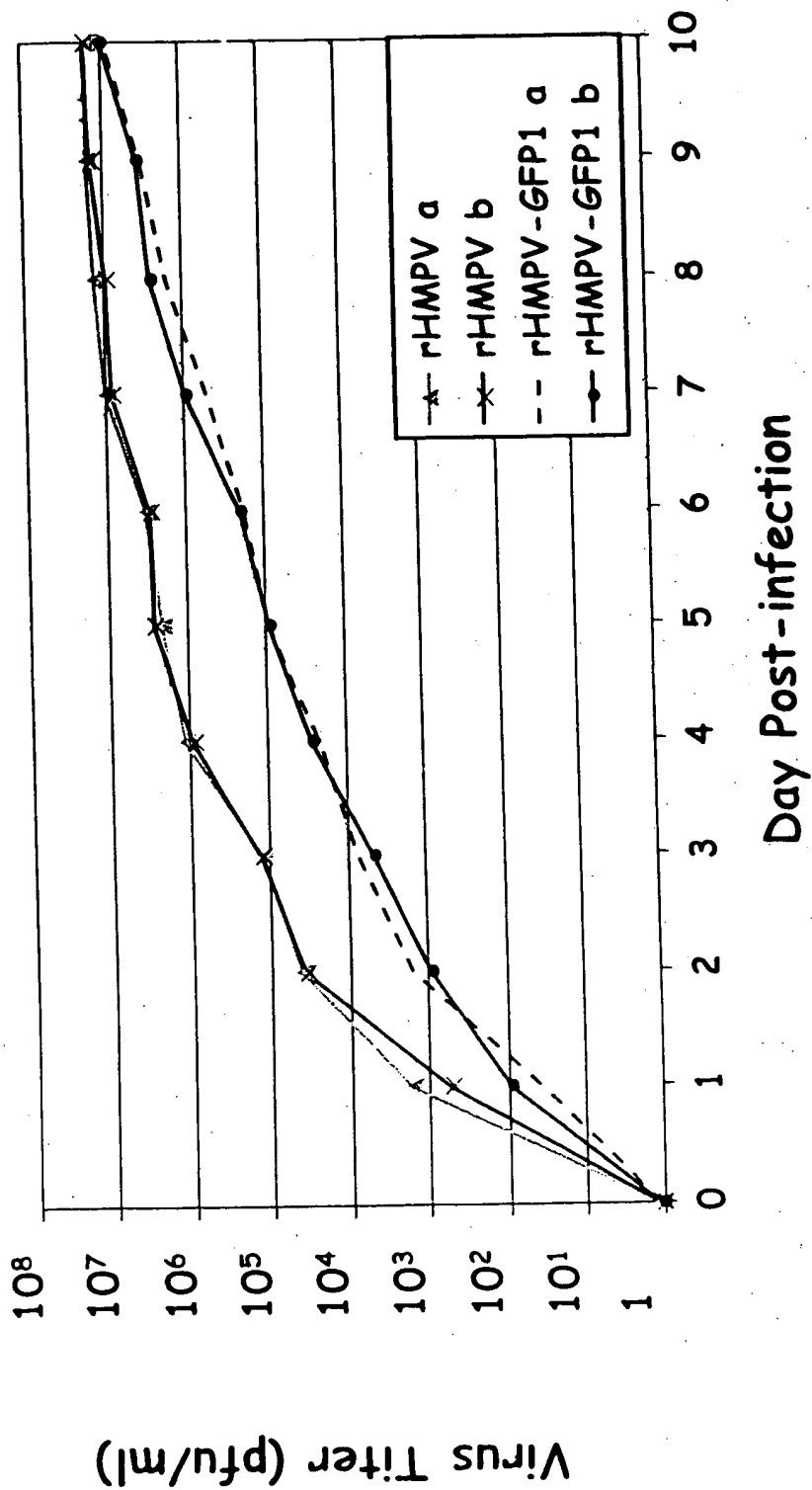


Fig. 14

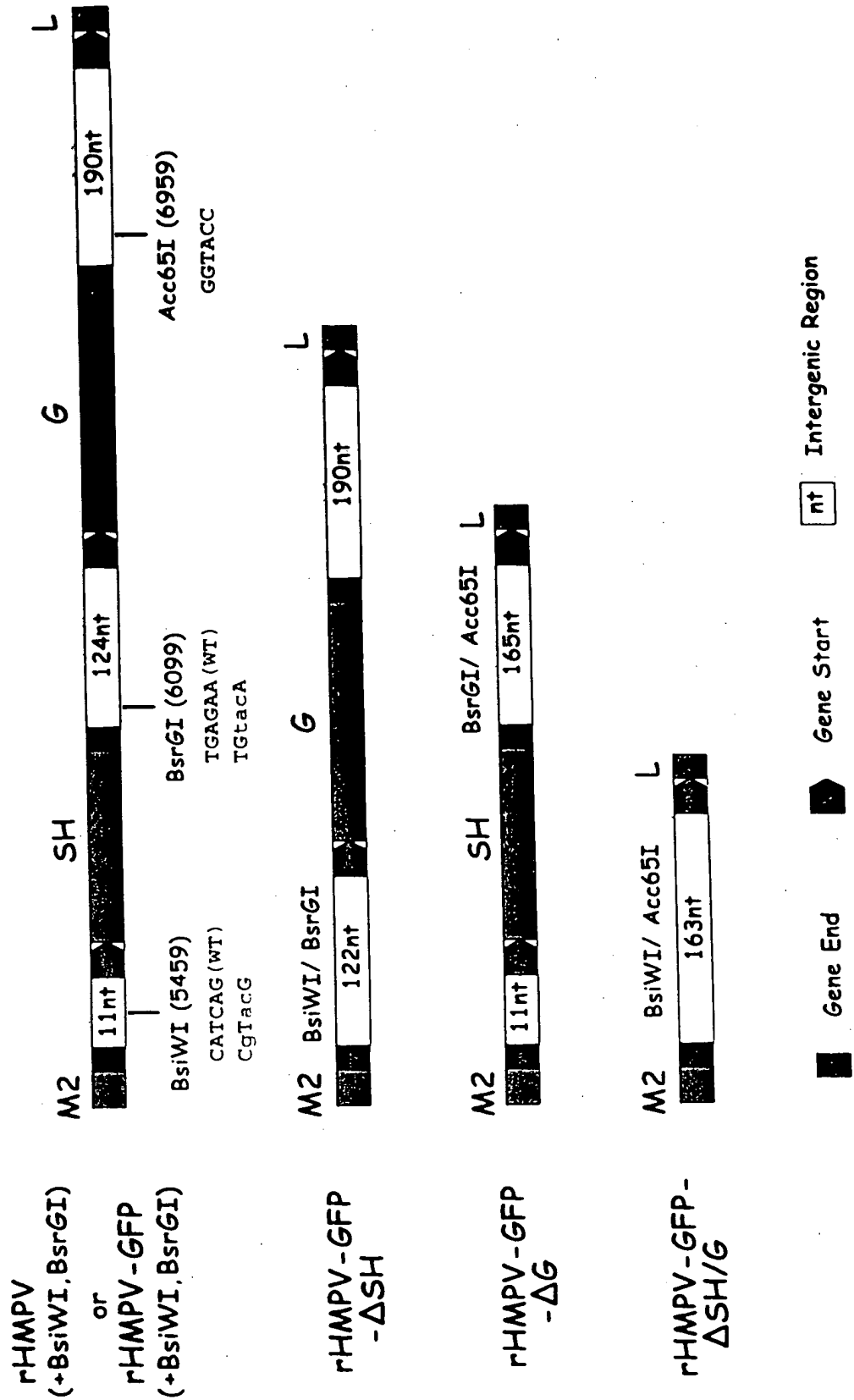


Fig. 15

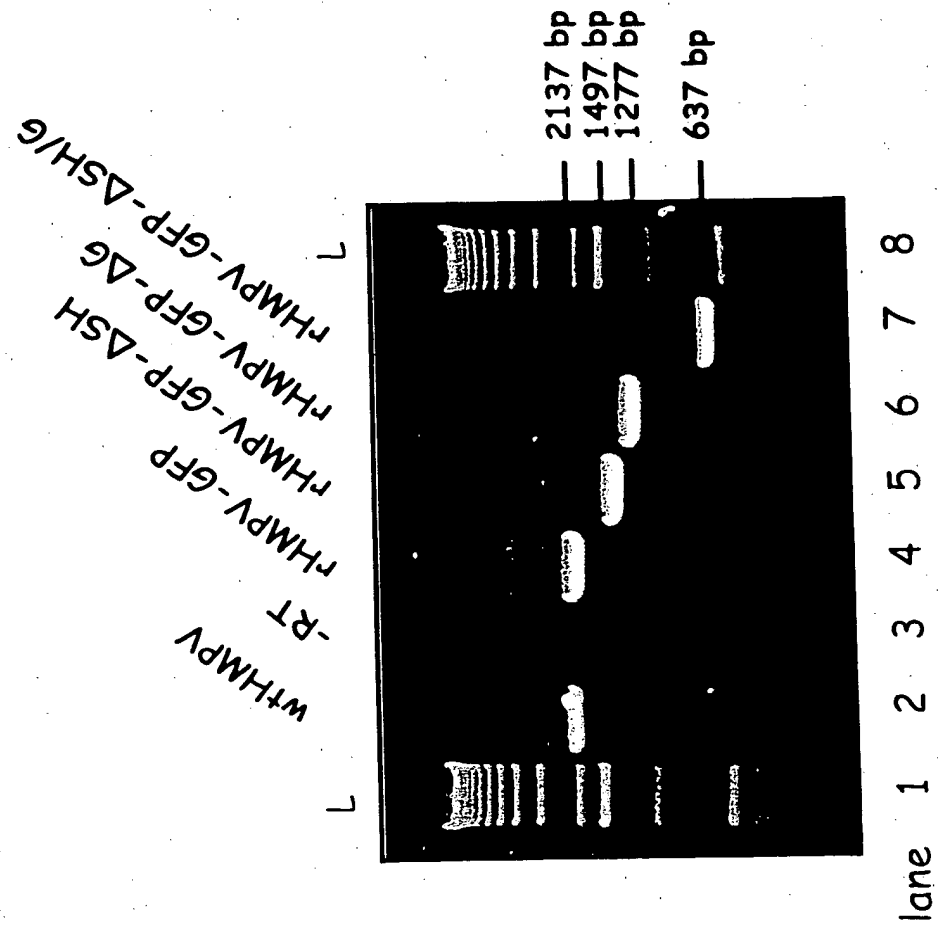


Fig. 16

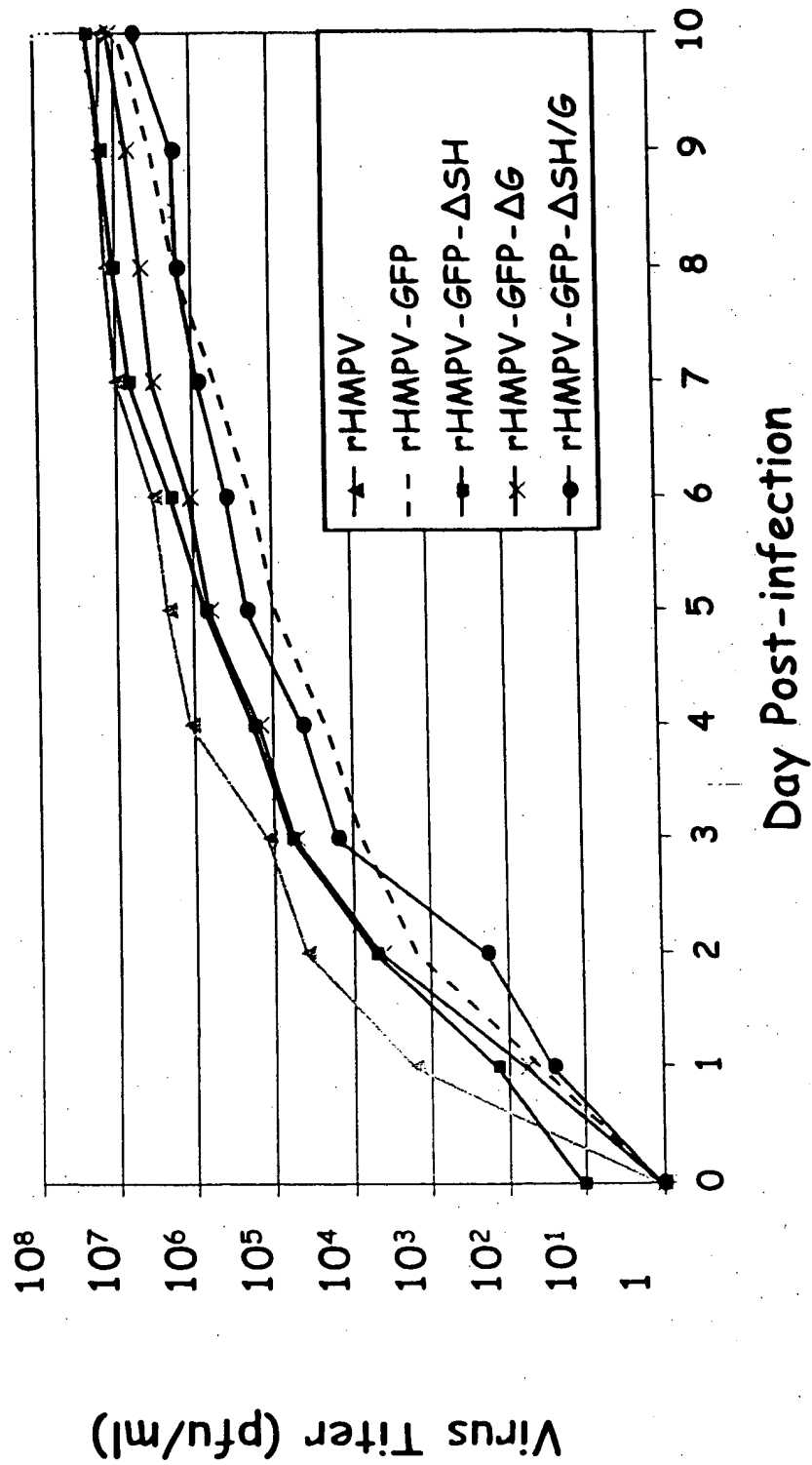


Fig. 17A

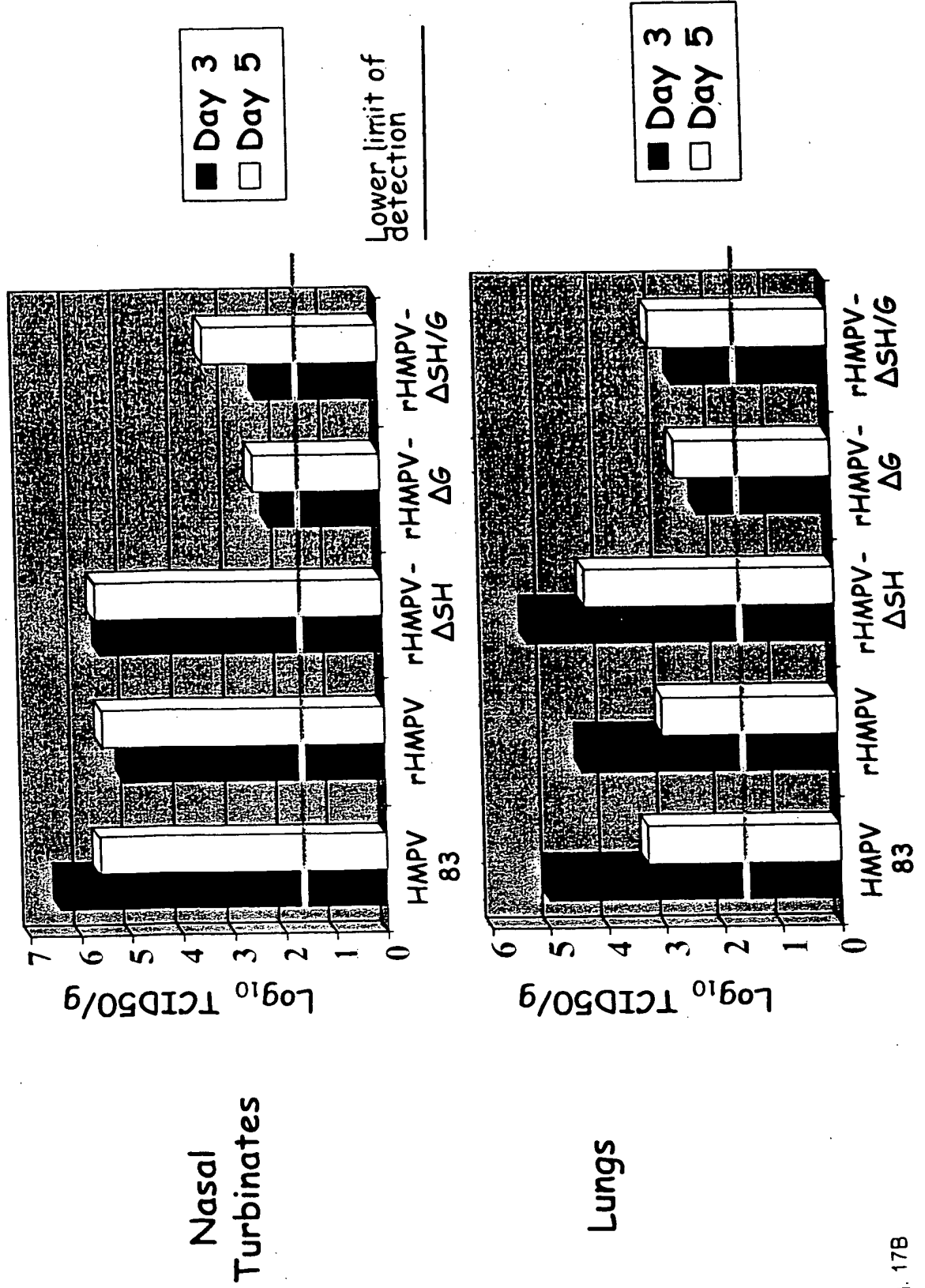


Fig. 17B

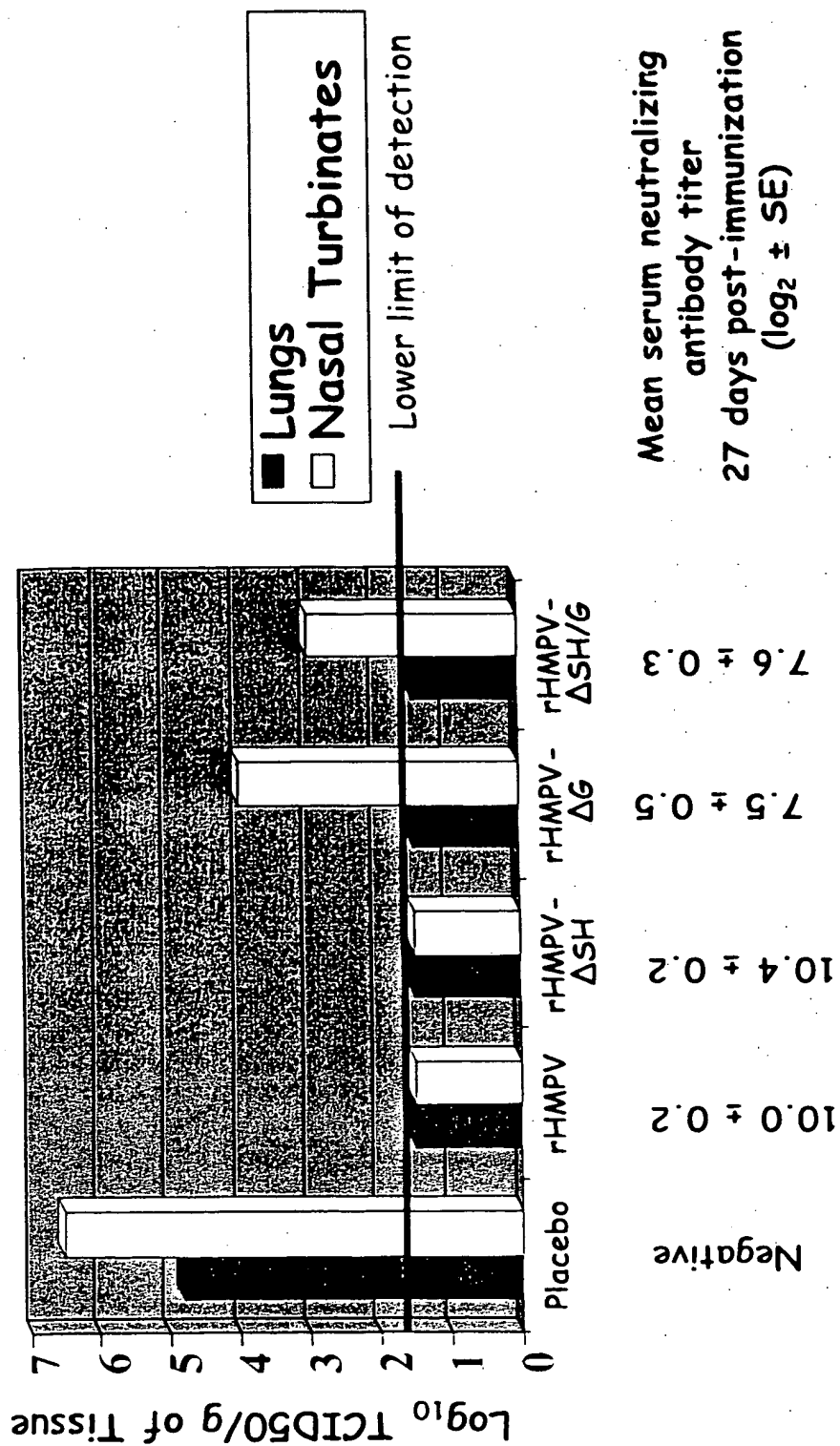


Fig. 17C

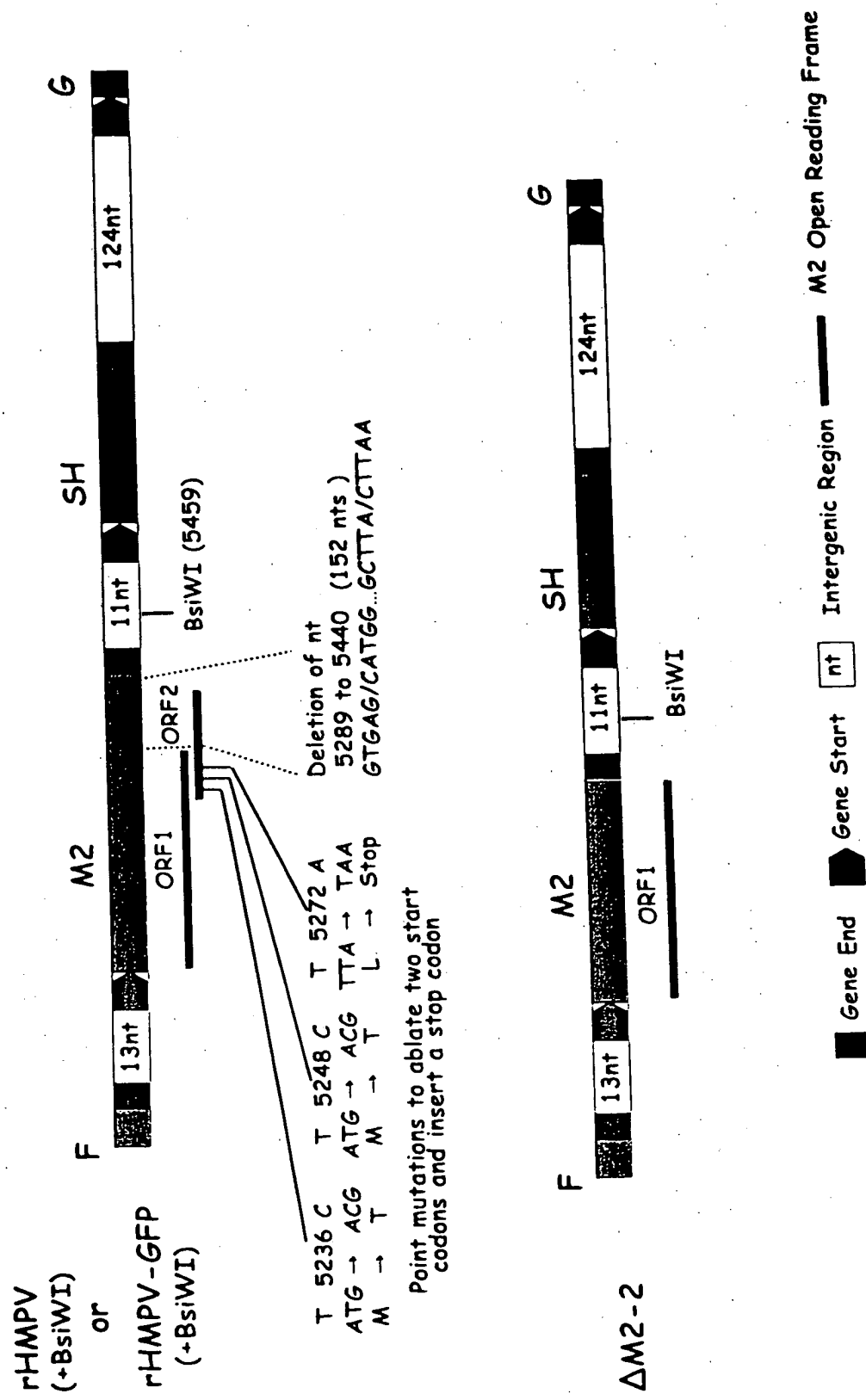


Fig. 18A

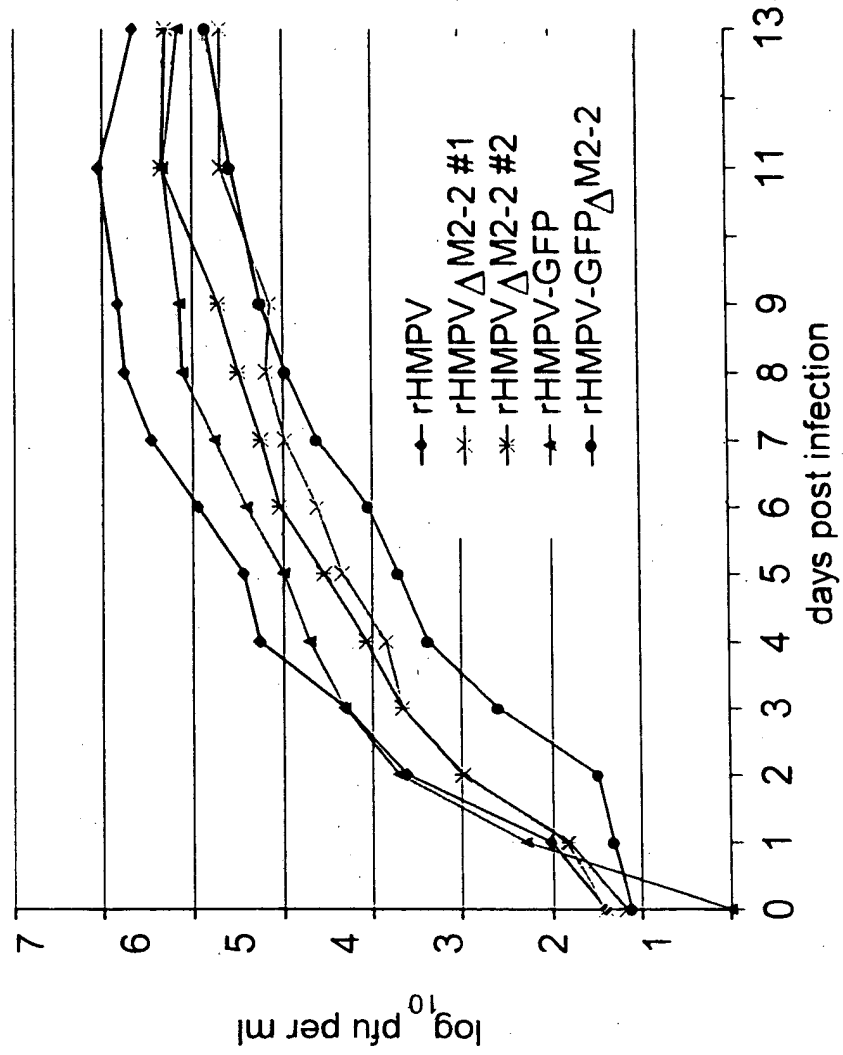


Fig. 18B

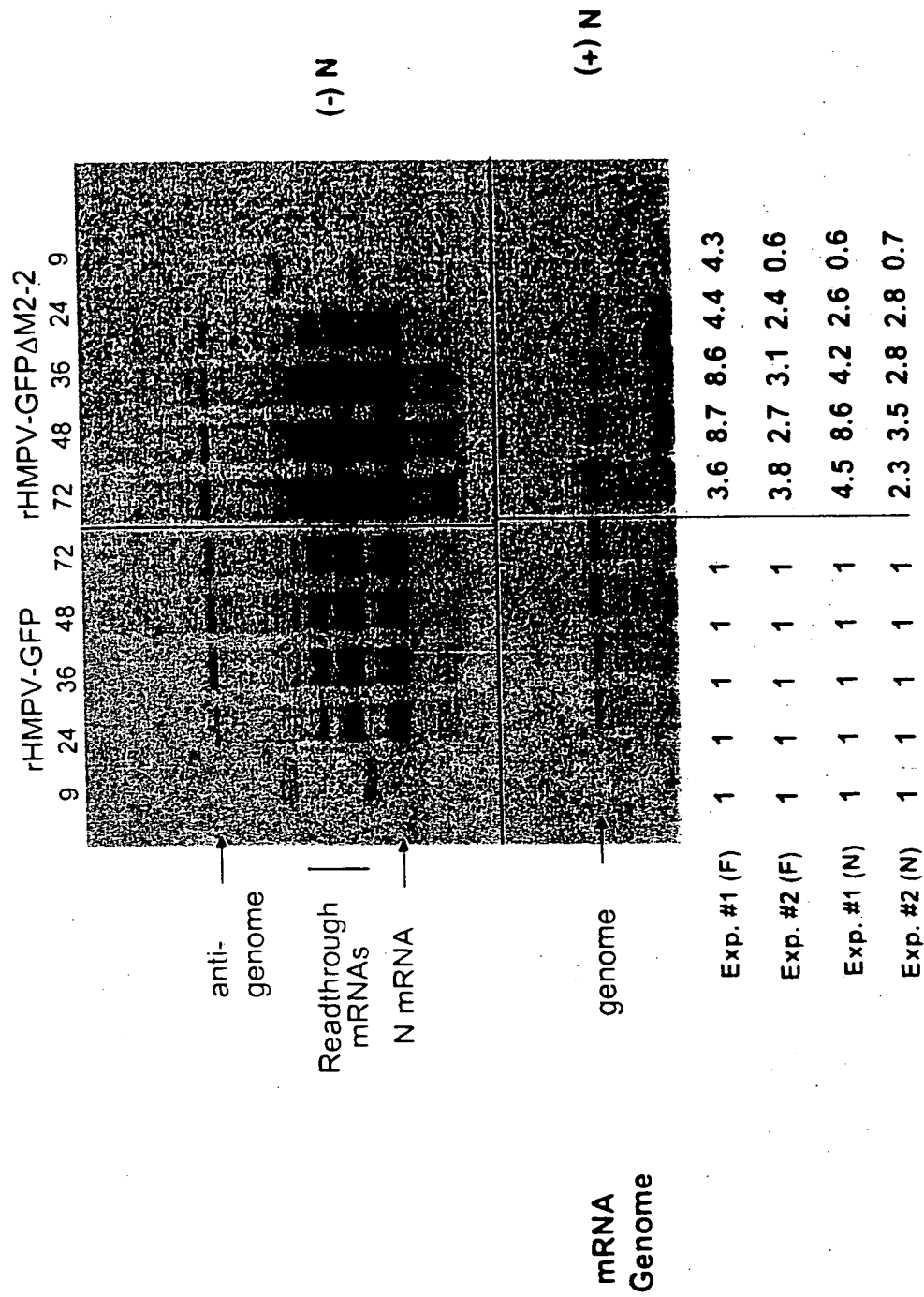


Fig. 18C

	C	X7	C	X5	C	X3	H
HMPV-GFP M2 C7S	M	S	R	K	A	P	N
HMPV-GFP M2 Y9S	M	S	R	K	A	P	N
HMPV-GFP M2 C15S	M	S	R	K	A	P	N
HMPV-GFP M2 N16S	M	S	R	K	A	P	N
HMPV-GFP M2 H25S	M	S	R	K	A	P	N

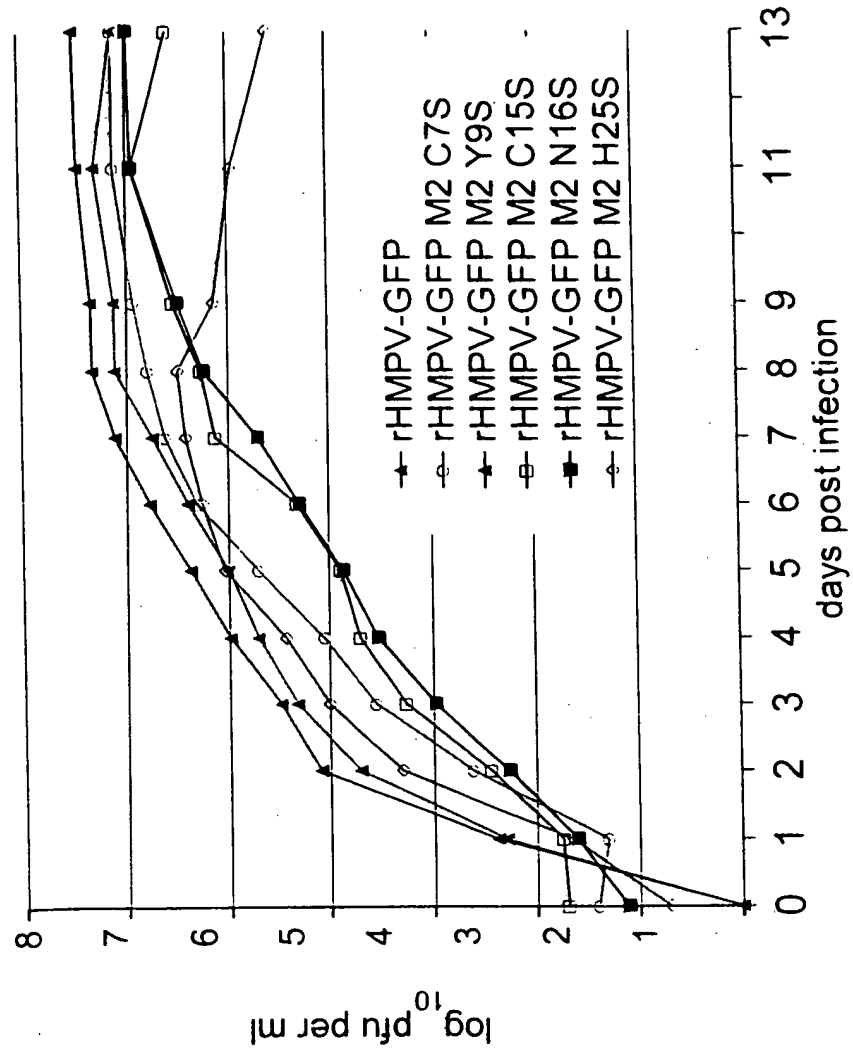


Fig. 20

	4775	
		AGA AAC TGC
		AAA t aa
		GGC GGC GTG
		GAA TAT
		AAA t aa
		TCG AAA TGC
		CCA tag
		GCT AAG CGC
		TCT TCG
		GGGACAAATCATAA
	4711	
		tag
		M S R K A P C K Y E V R G K C N R
		N K
		N N
HMPV		
rHMPV-GFP ΔN2-1		
HMPV		
rHMPV-GFP ΔN2-1		

Fig. 21

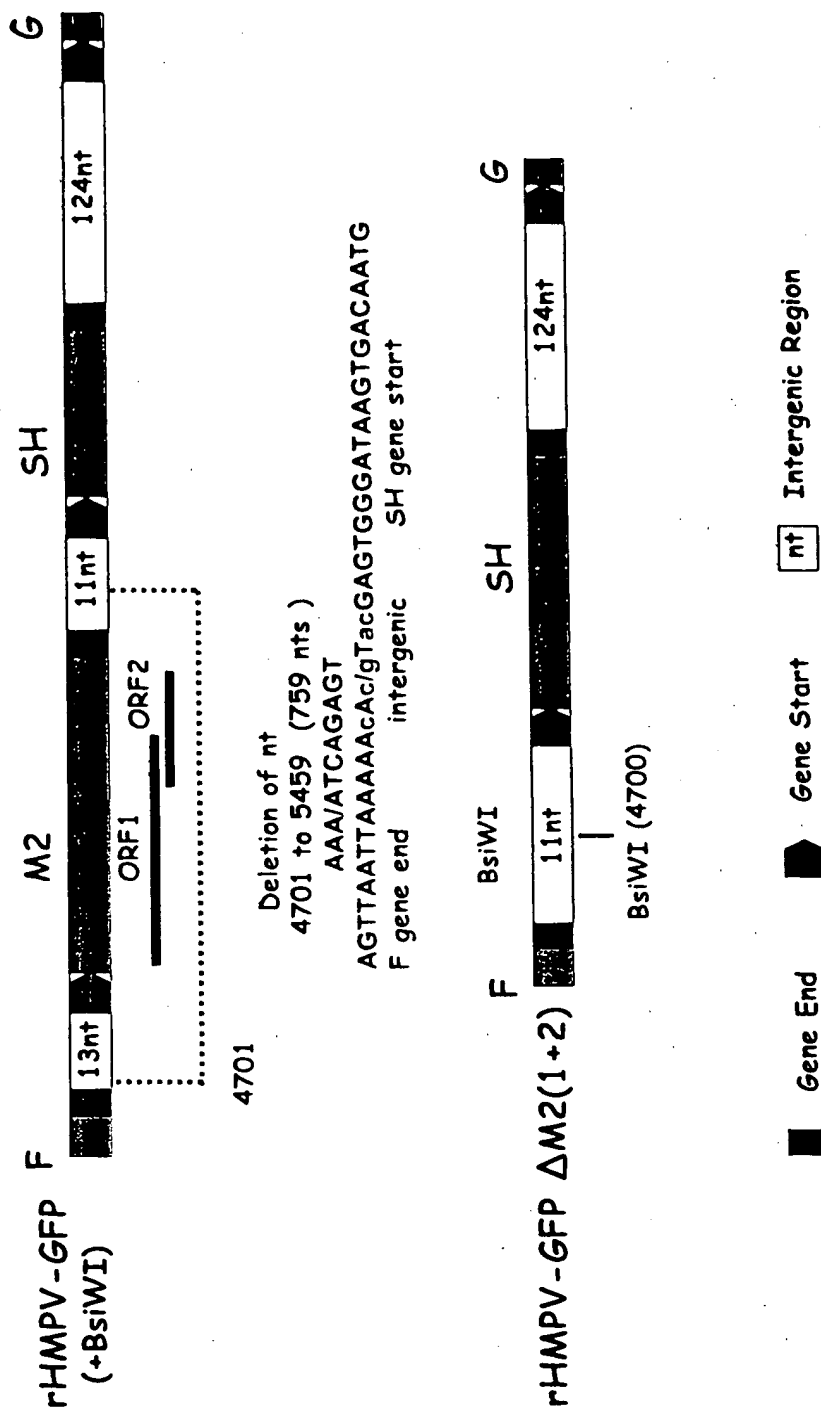


Fig. 22A

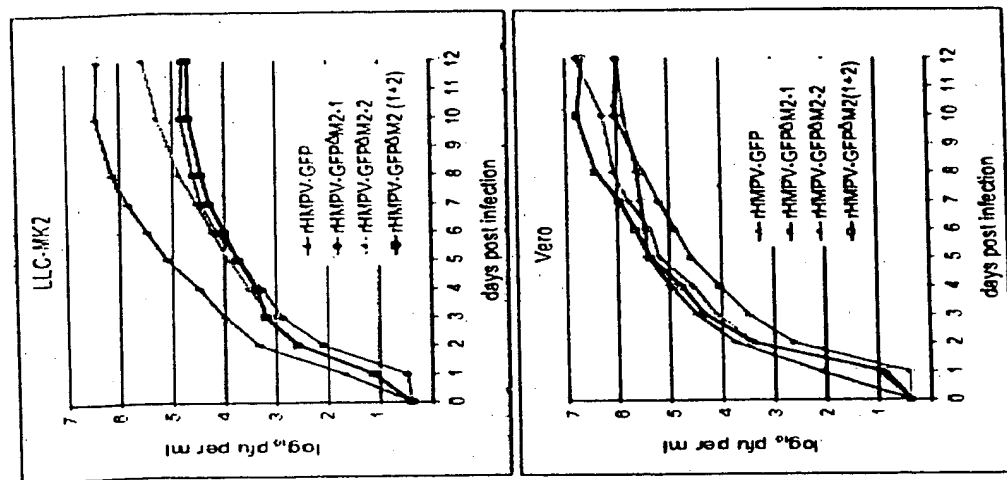


Fig. 22B

Reduction of virus yield in presence of exogenous interferon (IFN) type I

Virus	MOI	Fold reduction of virus yield			
		10 U IFN	100 U IFN	1000 U IFN	
rHMPV-GFP	1.0	5	160	1680	
rHMPV-GFP Δ M2(1+2)	1.0	19	1130	no virus	
rHMPV-GFP Δ M2-2	1.0	13	250	no virus	
RSV-GFP	0.01	4	17	90	

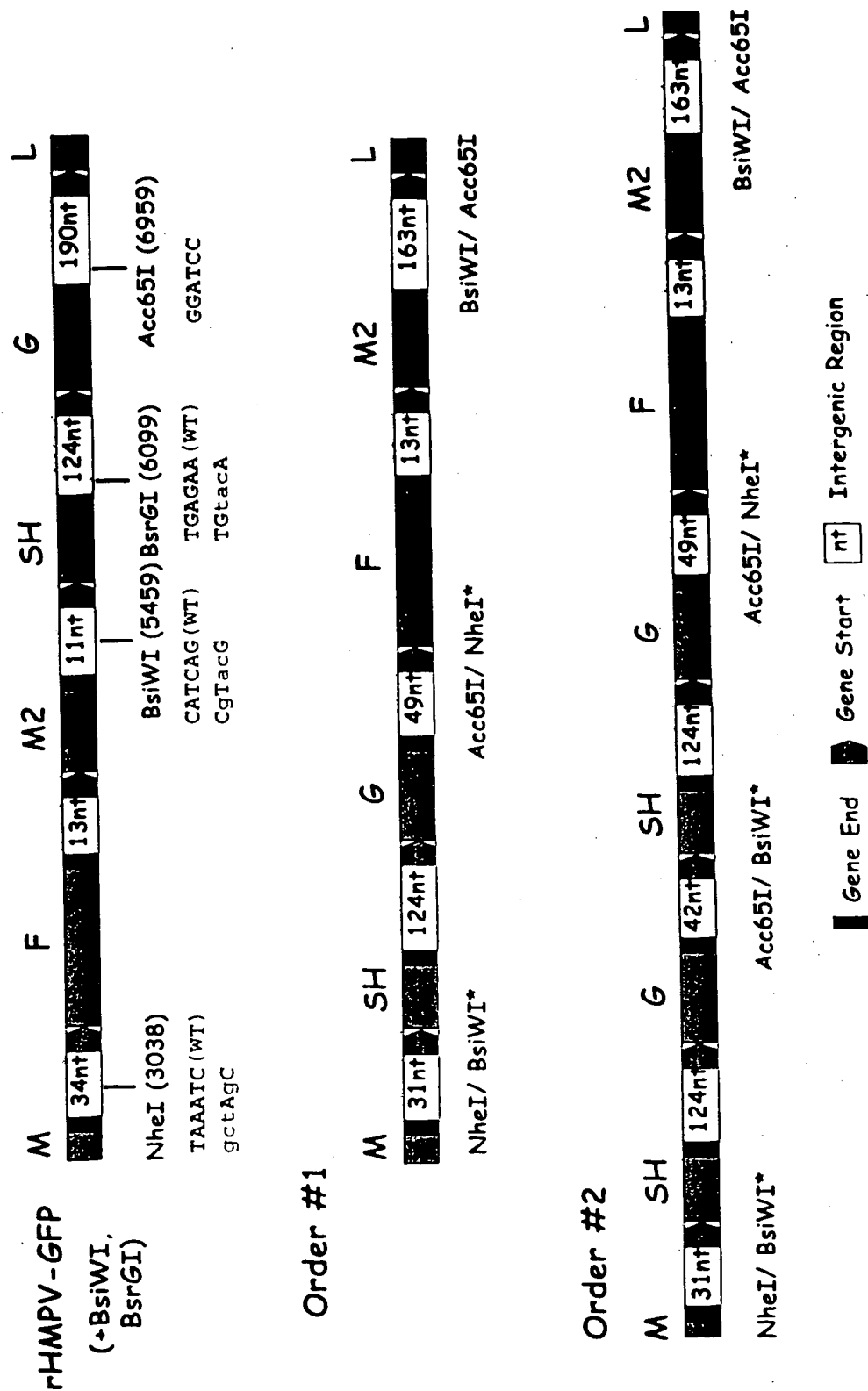


Fig. 23A

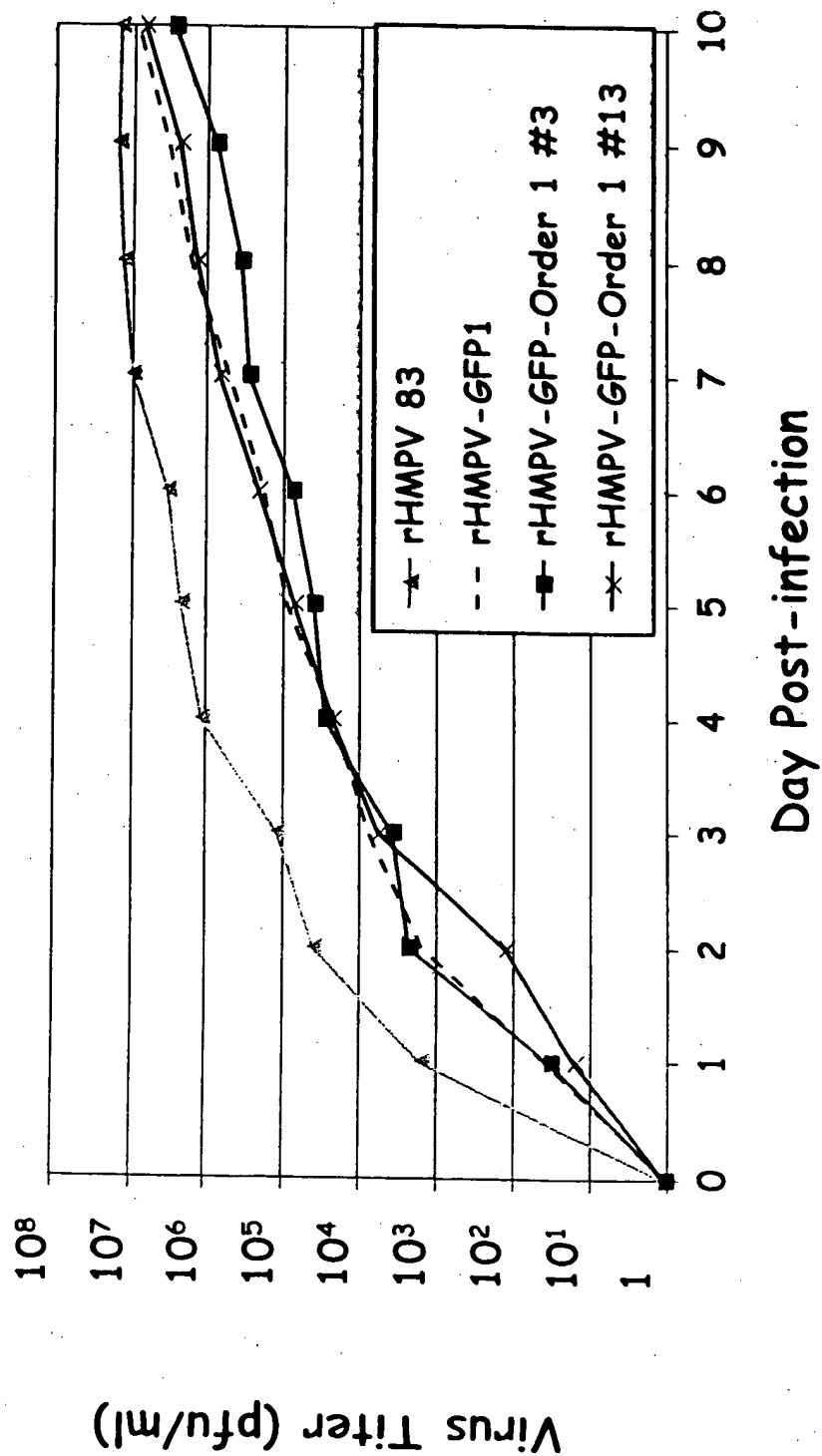


Fig. 23B

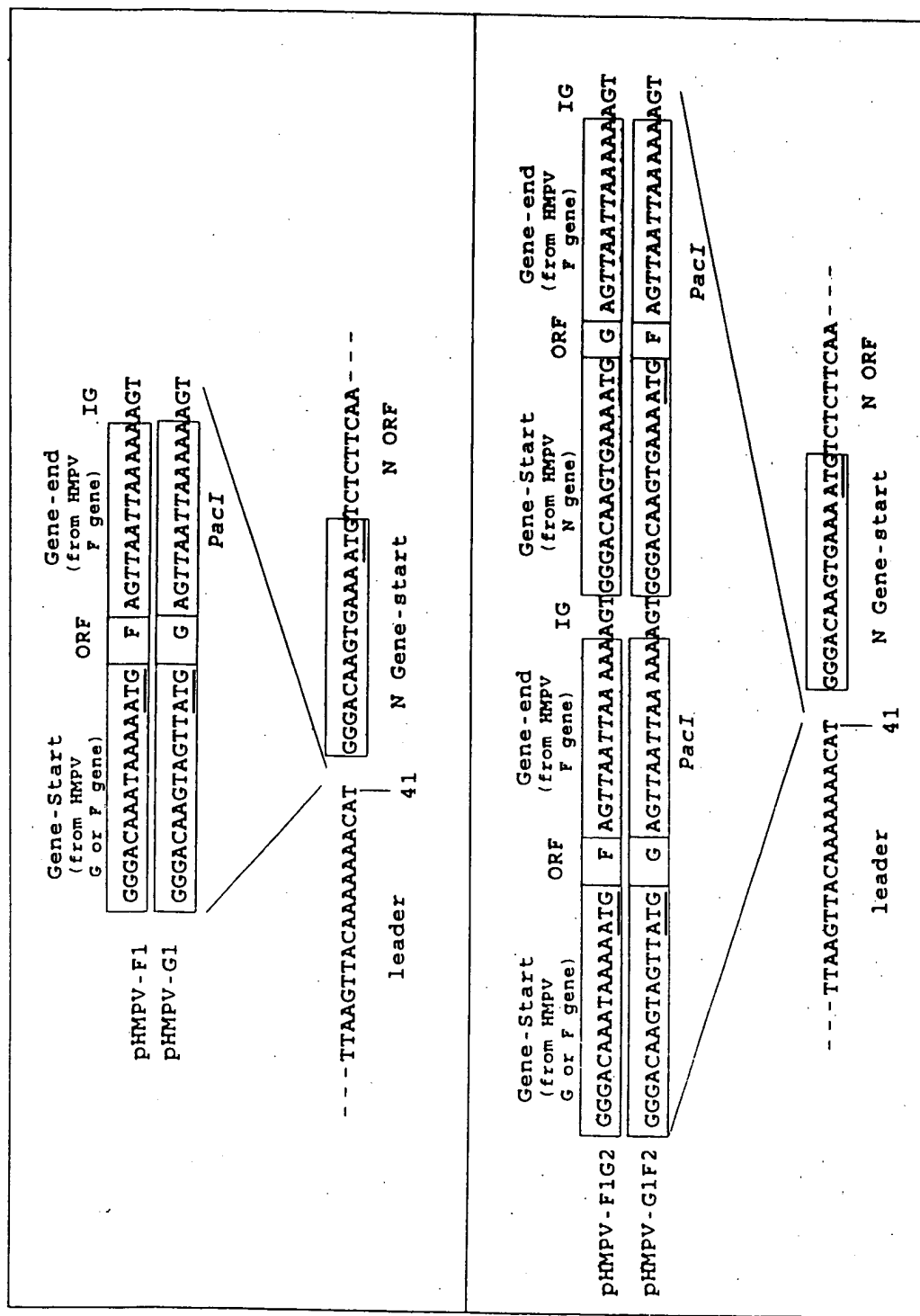


Fig. 24A

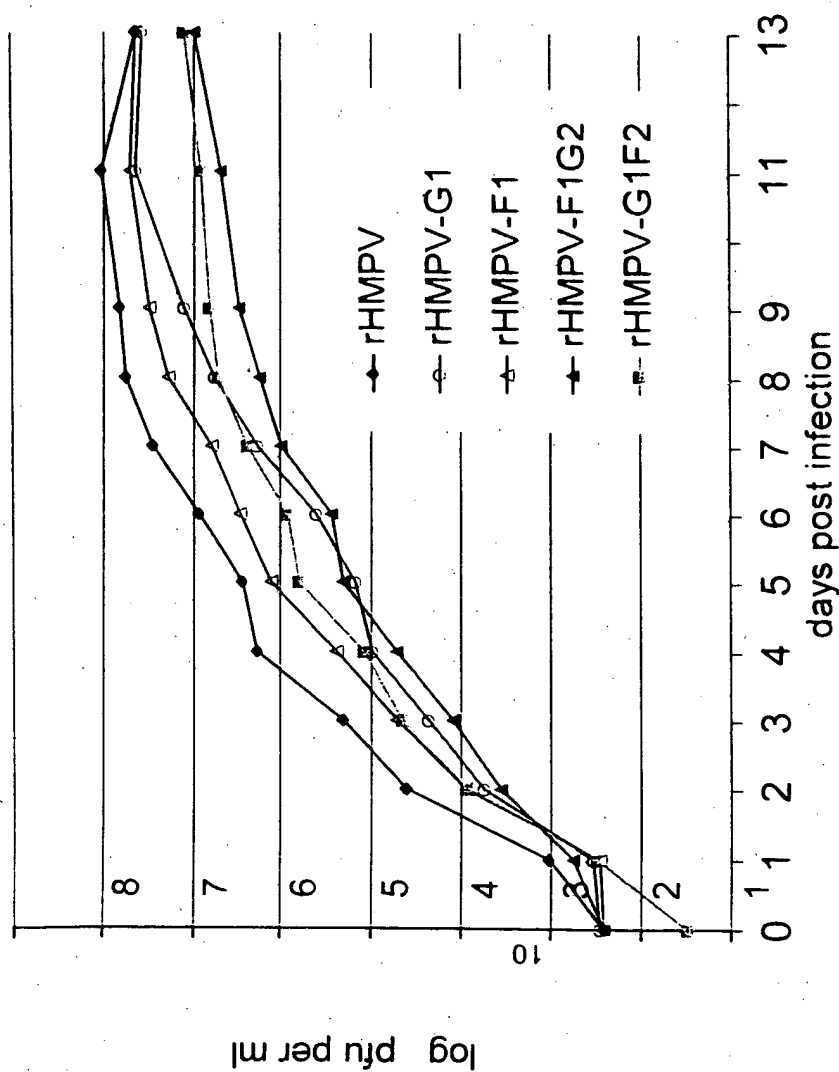


Fig. 24B

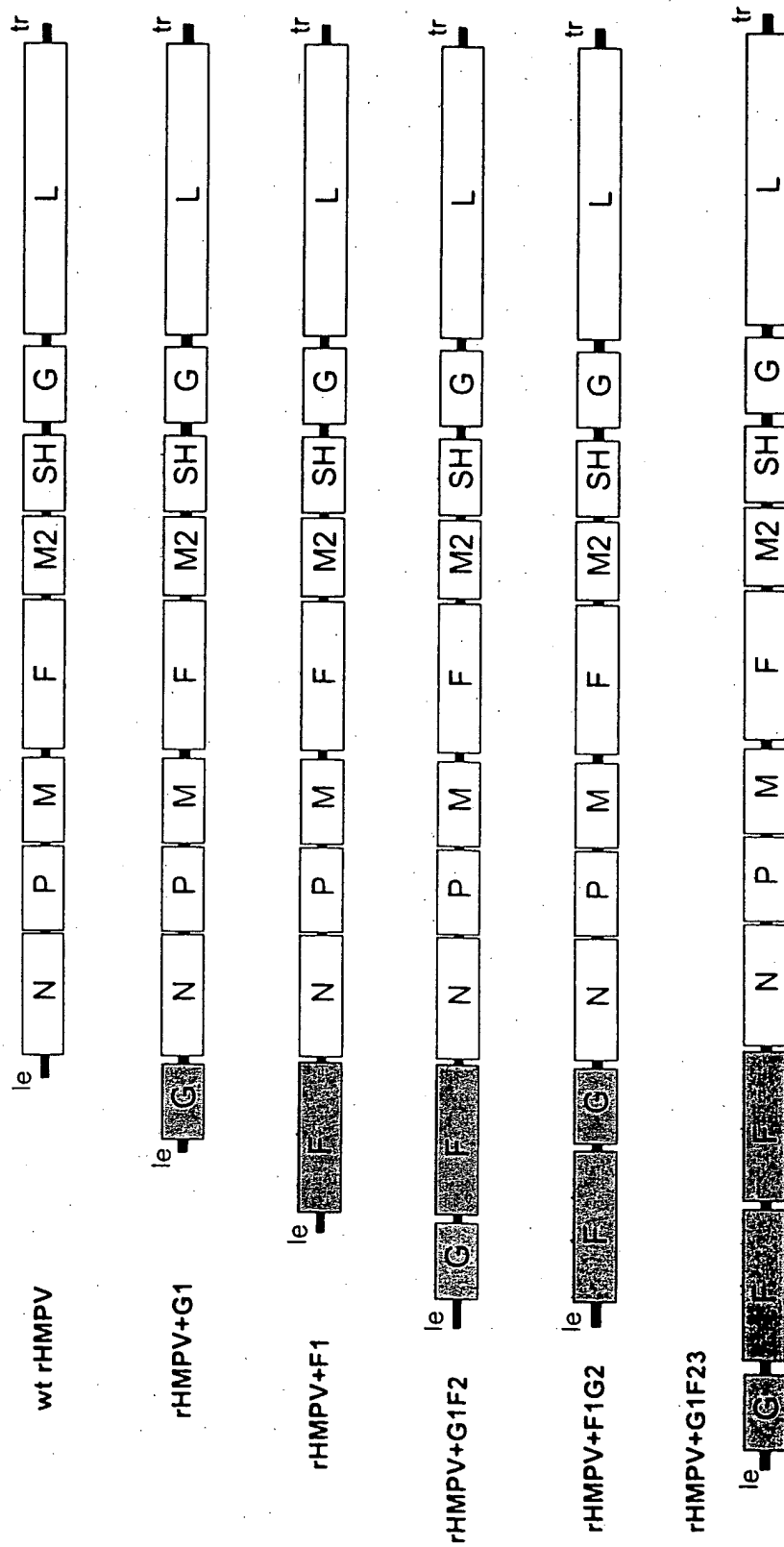


Fig. 25A

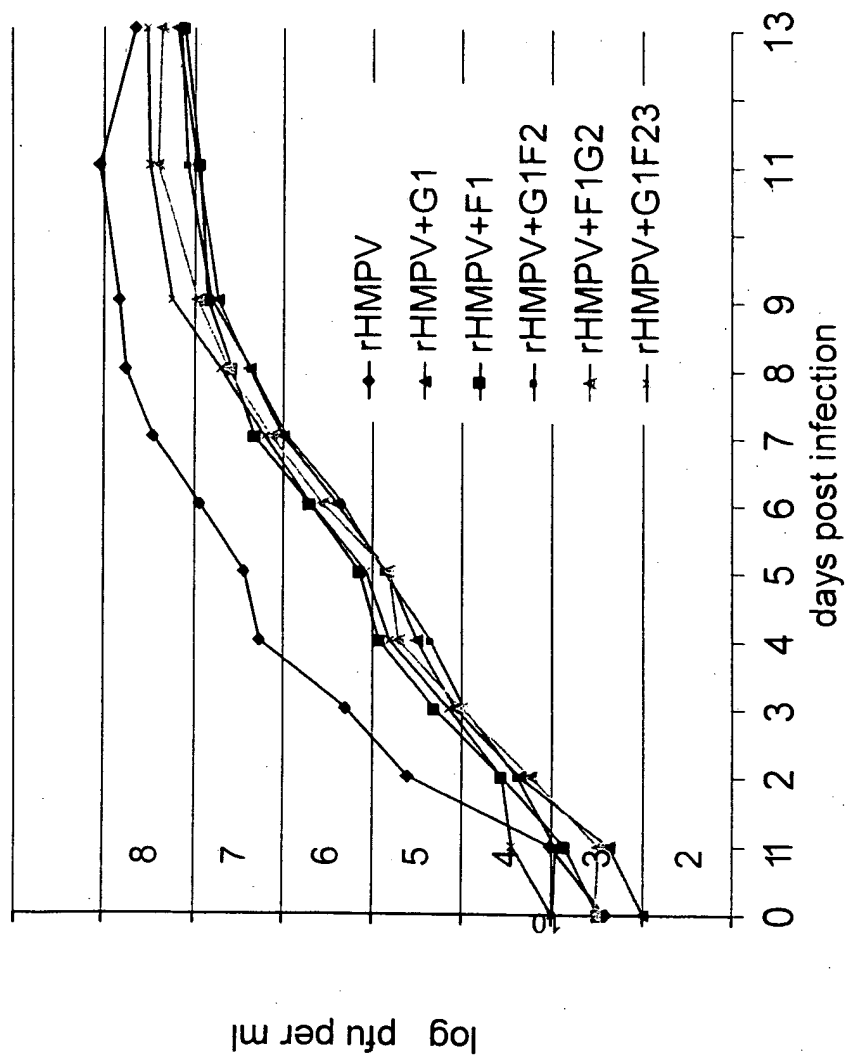


Fig. 25B

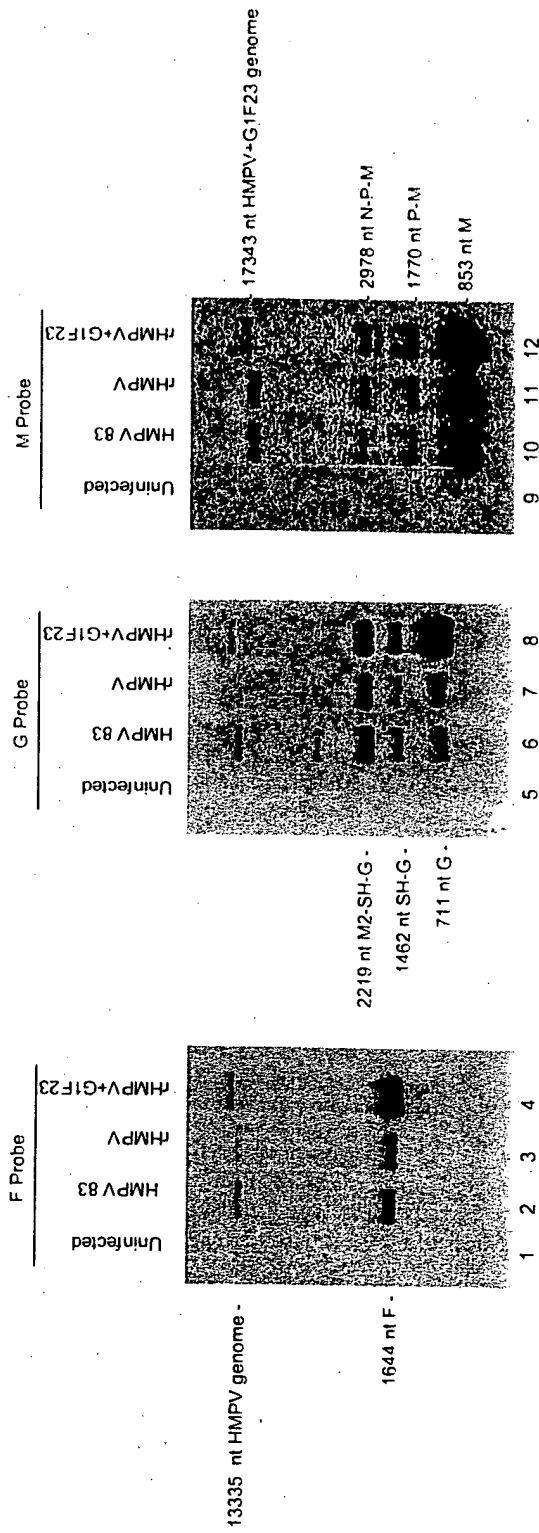
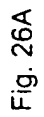
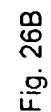
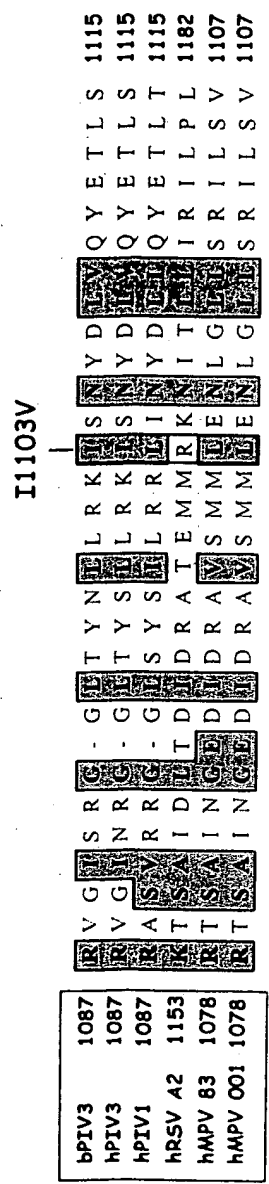


Fig. 25C

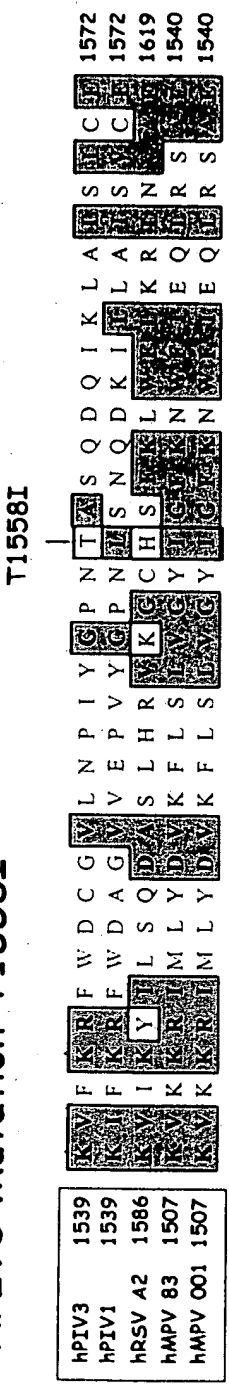




BPIV3 Mutation I1103V



HPIV3 Mutation T1558I



RSV A2 Mutation C319Y

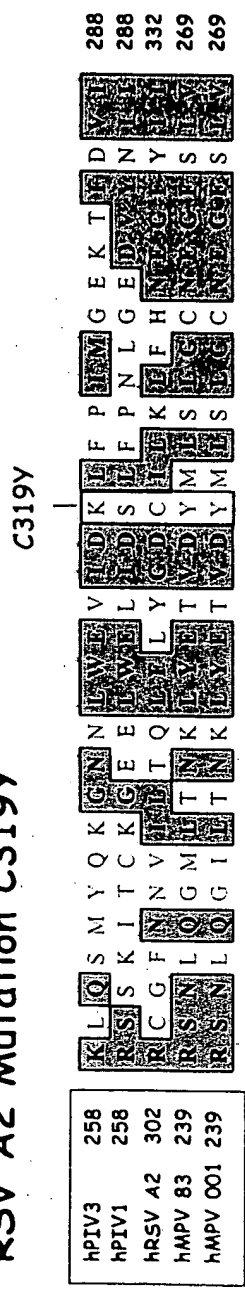
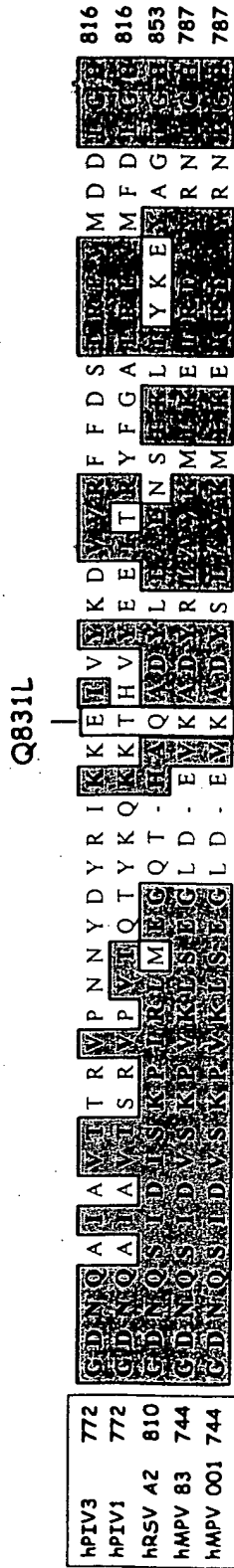
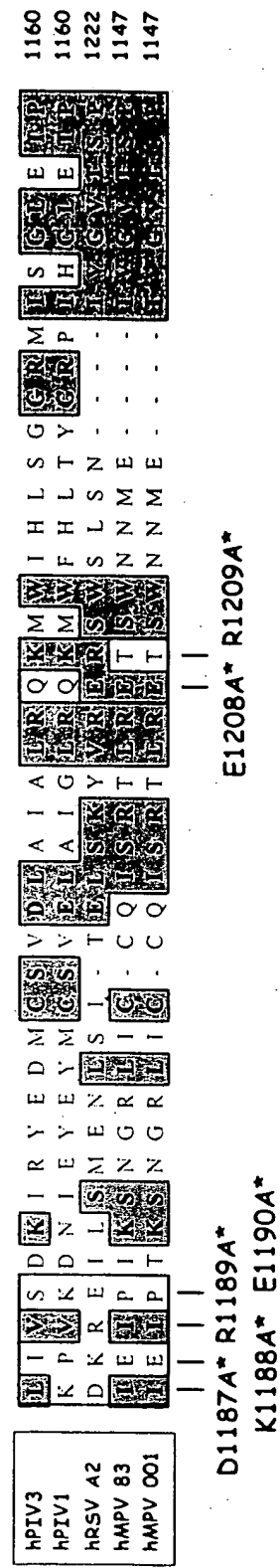
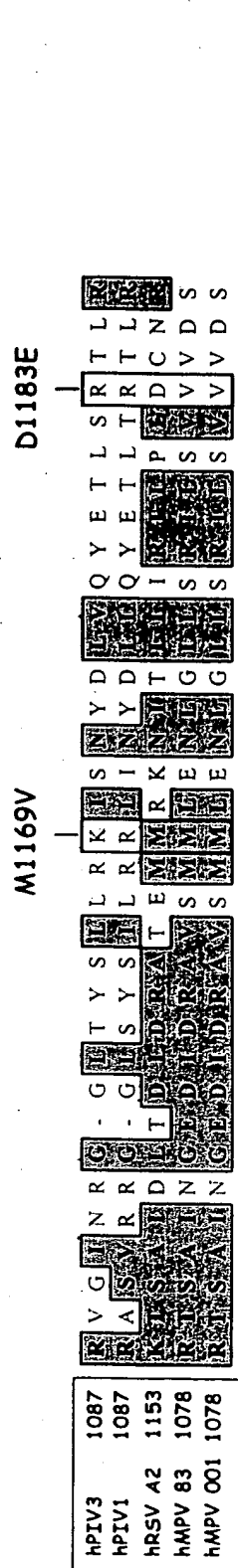


Fig. 26C

RSV A2 Mutation Q831L



RSV A2 Mutations M1169V, D1183E and C9



* Six point mutations collectively designated C9

Fig. 26D

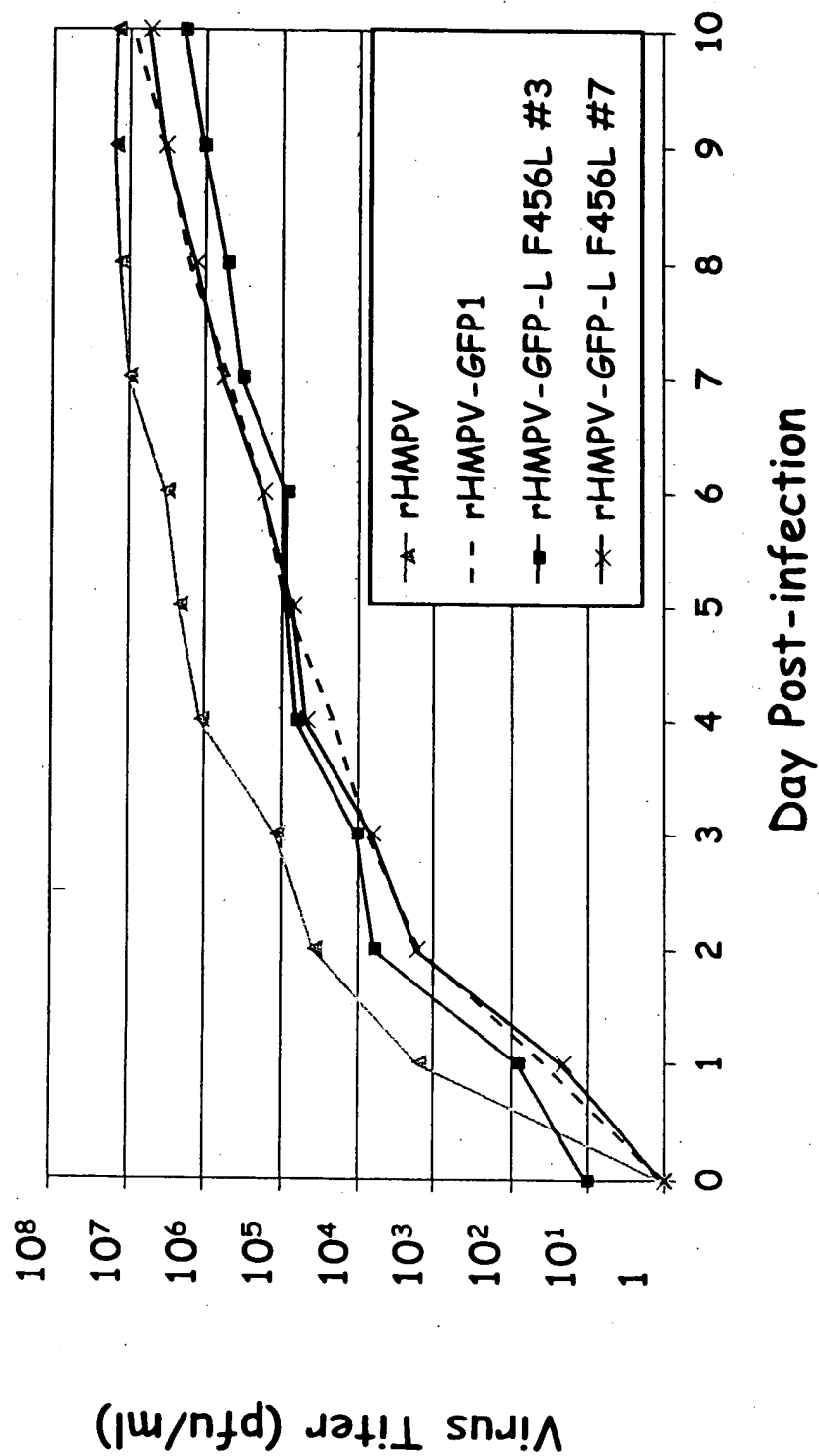


Fig. 27

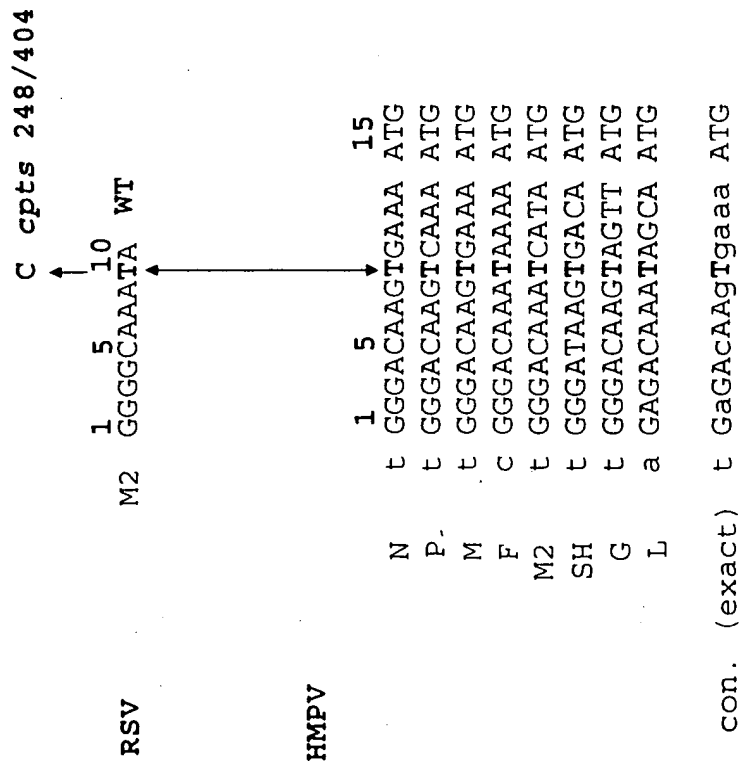
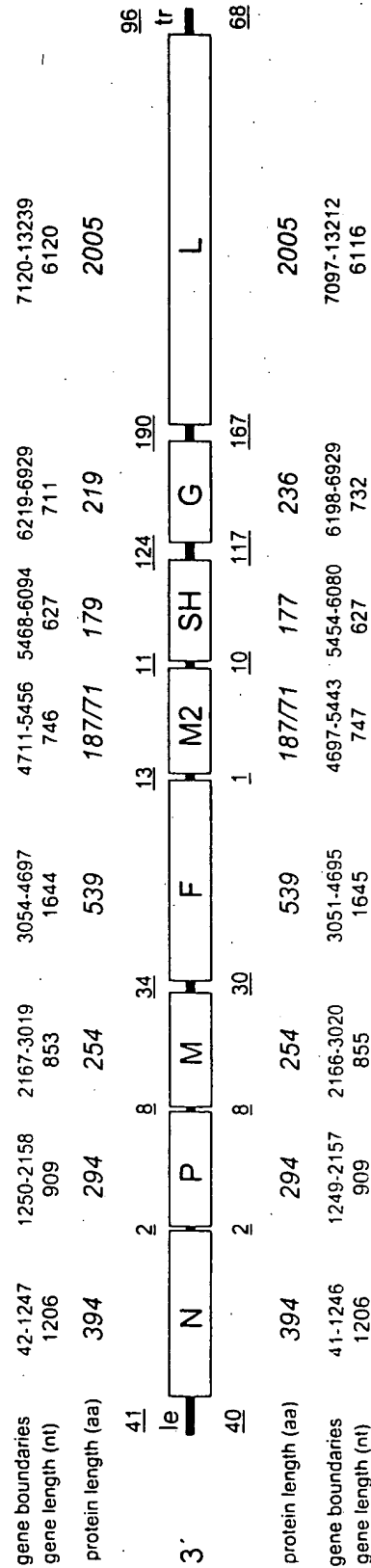


Fig. 28

CAN97-83, 13,335 nucleotides



CAN98-75, 13,280 nucleotides

Fig. 29

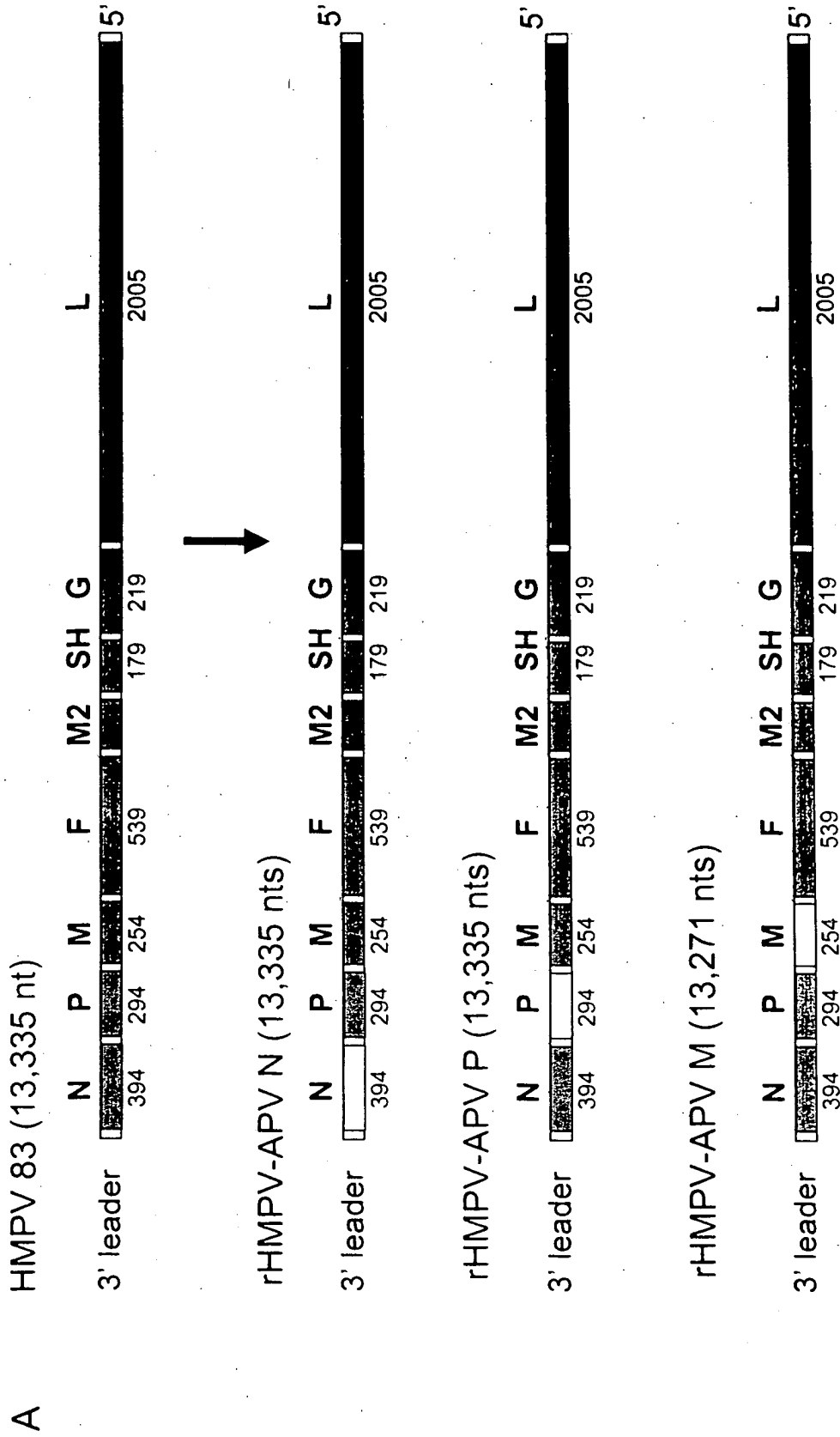


Fig. 30A

Diagram illustrating the organization of the HMPV and APV P ORFs. The sequences are shown with the N GE signal (AGTAAATTAAAAA) and P GS signal (GGACAAGTCAAAATG) regions highlighted. The HMPV P ORF sequence is shown with a BfuAI restriction site (ACCTGCT) and a P GE signal (part.) region. The APV P ORF sequence is shown with a BfuAI restriction site (ACCTGCT) and a P GE signal (part.) region.

BbsI
 GAAGACATGTGTTTATAAAAAATCAAGTTAGATAATAAGAAATCTCTAGC
 P GE signal
 M GS signal
 HMPV M ORF
 M GE signal
 NheI
 AGTTATATAAAAAATCAAGTTAGATAATAAGAAATCTCTAGC
 NheI
 AGTTATATAAAAAATCAAGTTAGATAATAAGAAATCTCTAGC
 - 64 nts nc

E

Diagram illustrating the organization of the rHMPV genome. The genome is a single linear strand of RNA, divided into segments labeled N, P, M, F, M2SH, G, and L. The N segment is flanked by MluI (12) and MluI (3038) sites. The P segment is flanked by PstI and PstI sites. The M segment is flanked by MluI (3038) and MluI (3038) sites. The F segment is flanked by NheI (3038) and NheI (3038) sites. The M2SH segment is flanked by M2SH and M2SH sites. The G segment is flanked by G and G sites. The L segment is flanked by L and L sites. The genome is 13335 nucleotides long.

Fig. 30B-E

	gene-end	intergenic	gene-start
	¹ ¹³		¹⁶
le (83)	aattaAGTTAcaaaaaaacat		GGGACAAAGTgAaAATGtctct N (83)
(75)	aattaAaTTccaaACAAAAC-		GGGACAAaTaAaAATGtctct (75)
N (83)	ttatgAGTAaAttAAAA--	gt	GGGACAAAGTcAaAATGtctct P (83)
(75)	ttatgAGTAaAttAAAA--	ct	GGGACAAAGTcAaAATGtctct (75)
P (83)	tatgtAGTTtaataAAAA--	taaaaaat	GGGACAAAGTgAaAATGgagtc M (83)
(75)	catgtAGTTtaataAAAA--	taacaat	GGGACAAAGTcAaAATGgagtc (75)
M (83)	attttAGTTATatataAAAA--	tcaag- 24 nt-agaac	GGGACAAaTaAaAATGtctct F (83)
(75)	atttatAGTTATatataAAAAA	ttag- 20 nt-aaagc	GGGACAAAGTgAaAATGtctct (75)
F (83)	cagttAGTTAattAAAA--	taaaataaaaattt	GGGACAAaTcAtAATGtctct M2 (83)
(75)	tagttAGTTAattAAAAA-	t	GGGACAAaTcAtcAATGtctct (75)
M2 (83)	acttaAGTTAGTAaAAAA--	cacatcagagt	GGGAtAAgTgAcAATGataac SH (83)
(75)	acttaAGTTAGTAaAAAA--	taaatagaat	GGGAtAAaTgAcAATGaaaaac (75)
SH (83)	agtttAGTTATtttAAAA--	tattt-114 nt-aatat	GGGACAAAGTggttAIGgaggt G (83)
(75)	agtctAGTTATtttAAAA--	ctcta-107 nt-aaat	GGGACAAAGTggccAIGgaagc (75)
G (83)	aaattAGTTAacaAAAA--	tacga-180 nt-tccaa	GaGACAAaTagcAATGgatcc L (83)
(75)	caagtAGTTAacaAAAAA-	ctata-157 nt-ttcaa	GGGACAAaTaacAATGgatcc (75)
L (83)	atgatAGTTAattAAAA--	ttaaa-91 nt	tr (83)
(75)	ccattAGTTAattAAAAA--	ttata-63 nt	(75)
consensus	AGTTAnnnAAAAA		GGGACAAAnTnnnAATG

Fig. 31

Percent amino acid or nucleotide sequence identity between the indicated strains of HMPV or RSV for the indicated proteins and ORFs

Viruses compared	percent amino acid sequence identity for indicated protein (percent nucleotide sequence identity for indicated ORF)									
	N	P	M	F	M2-1	M2-2	SH	G	L	
CAN97-83 vs CAN98-75	96 (84)	85 (81)	97 (85)	95 (84)	96 (85)	89 (87)	59 (69)	37 (59)	94 (84)	
CAN97-83 vs 00-1	99 (94)	95 (92)	99 (94)	98 (94)	98 (94)	96 (95)	85 (88)	70 (77)	99 (95)	
RSV A2 vs RSV B1	95 (85)	90 (85)	91 (85)	89 (81)	91 (84)	61 (69)	72 (77)	55 (67)	92 (85)	

Fig. 32

Fig. 33A

B. G protein

CAN98-75	1	AR	F	KM	IRS	HR	T	S	AP	M	TL	DHA	54						
CAN97-83	1	MEVKVENIR	AI	DMLKARVKNR	VARSKCFK	NAS	ILIGITLSIALNI	YLI	NYT	54									
00-1	1	T					V					K	54						
		**	*****	*****	*****	***	***	***	***	***	***	***	***						
CAN98-75	55	TS	NMTKV	CVNM	V	PS	KTPMT	AAD	NTK	P	QA	LT	DS	SLA	T	108			
CAN97-83	55	IQTSS	SESEH	HTSSP	PTE	S	KEASTI	ST	DN	P	INS	QHP	TQ	STEN	PTL	NPAA	108		
00-1	55	M	NT			S	M	SR	TP	VP	S	T	SSP	GS	YF		108		
		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
CAN98-75	109	LEDHLH	GTP	A	VSQQT	EH	TLLRSTNRQ	TQ	TAEKKP	TRAT	TKKET						162		
CAN97-83	109	SVSP	ETEP	ASTPD	T	TNR	LLSSVDR	STAQP	SESR	TKTKPTV	HTRNP	SP	STAS	TQS			162		
00-1	109	A	SP	T		PPF	TH	TP	A	S	A	K	R	S	R	H	162		
		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
CAN98-75	163	TT	I	ST	ATQ	LTNT	NI	Q	ISNG	EA	AR	RNNA	SSDQ	TQ	ADPS	Q	216		
CAN97-83	163	PPR	ATT	KAIR	RAT	IFR	MS	STGKR	-PTT	TSVQ	SDS	STTTQ	NHEET	GSAN	PQAS	VS	215		
00-1	163			RTA	T	L	T	R	-S	A	P	I	A	HKN	ASP	S	T	A	215
		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CAN98-75	217	QHTQ	KST	TTT	THNT	D	TSS	PSS	-										236
CAN97-83	216	TMQN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	219
00-1	216	TRIQR	K	S	VEAN	IST	T	YN	QIS										236

Fig. 33B

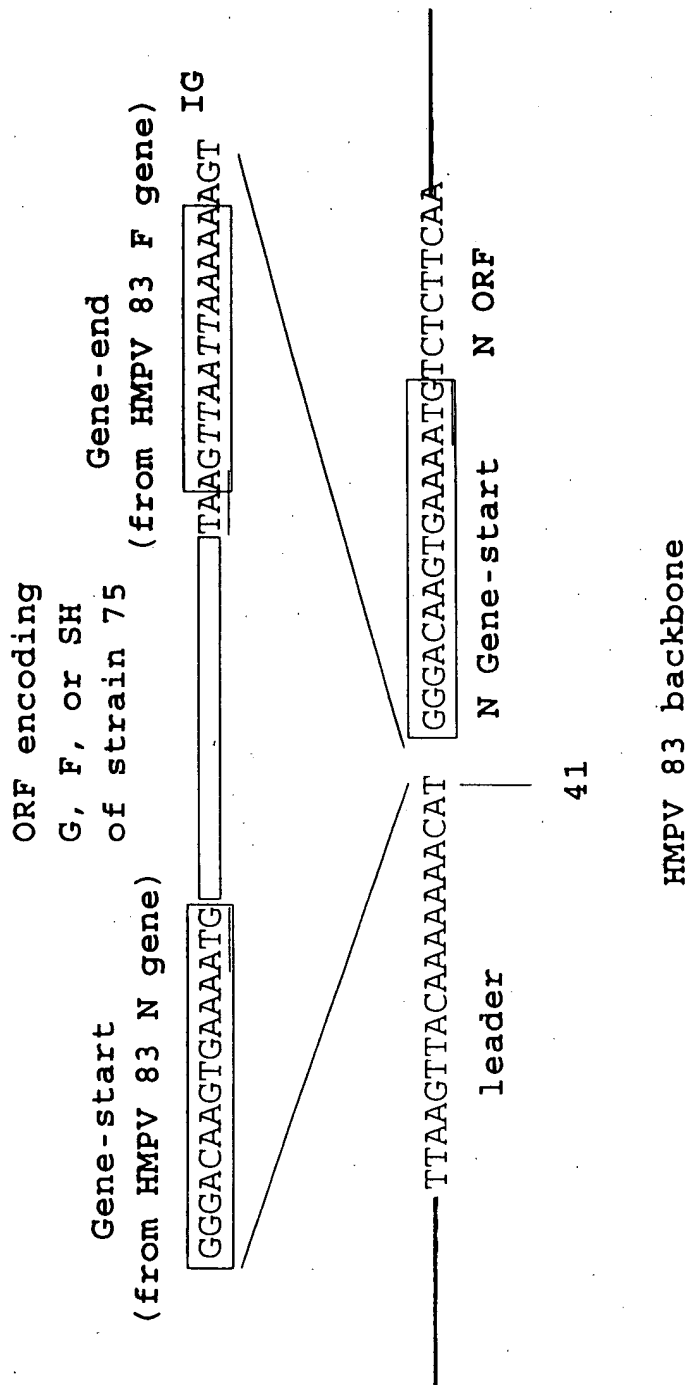


Fig. 34

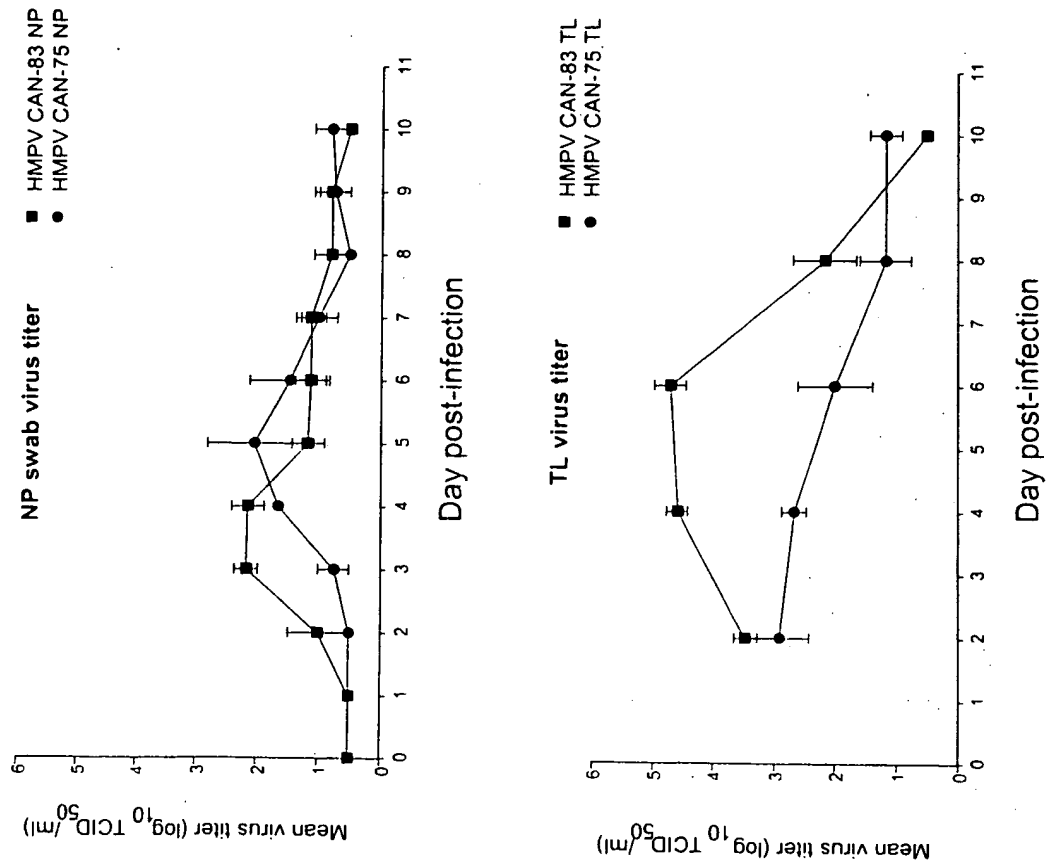


Fig. 35

HMPV strain 83

1	CTGCGAATAA	AACGCGTATA	AATTAAGTTA	CAAAAAAACA	TGGGACAAAGT	50	GAATAATGCT	CTTCAAGGGA	TTCACTGAG	TGATCTATCA	TACAAGCATG	100
101	ATGATTTTAA	ATAGCTCTAG	TATACATAAA	AGAGATGTT	AGGACACAAAG	60	AGACAGTGA	CACTTCTATC	ATTGCAACAA	GAATAAACAC	TATTTGTGG	200
201	AGAAATTTCTA	TATGCTAAGC	ATGCTGATTA	CAATATGTT	CGAGAAATAG	70	AGATACAATA	TATTTAGACA	GTTCTAGGAT	CAGAGAGAT	ACAGTAGAT	300
301	CTAAGAAACT	CAGGCAAGTG	AGTCCAAGTG	GTITTAACCA	GAACGTACTC	80	CTTGGGAAA	GTAAAAACA	ACAAAGGAGA	AGATTACAG	ATGTTAGACA	400
401	TACACGGAGT	AGAGAAAGC	TGGGTGGAAG	AGATAGACA	AGAAAGCAGA	90	AAACAATGG	CACTTTGCT	TAAAGAATCA	TCAGCAATA	TTCCACAAA	500
501	TCAGAGGCTT	TCAGCACACG	ACACACCTAT	AATCTTATTA	TGTGTAGGTG	100	CCTTAATAT	TACCAAACTA	GCATCAACTA	TAGAAGTGG	ATTAGAGACC	600
601	ACAGTCAGAA	GAGCTAACCG	TGTACTAAGT	GATGACTTCA	AAGATTACCC	110	TAGGATGAC	ATACCAAAA	TCGCTAGATC	TTTCTATGAT	TTATTTGAAC	700
701	AAAAAGTGA	TTACAGAAAT	TTGTTCAATG	AGTATGGCAA	AGCATTAGCC	120	TCATCTCTA	CAGGACGAA	AGCAGAAAGT	TTATCTGTTA	ATATATTCAT	800
801	GCAAGCTTAC	GGTGTGGTC	AAACAATGCT	GAGGTGGGGA	GTCAATTGCCA	130	GGTCACTTA	CAATATAATG	TTAGGACATG	TATCTGTCCA	AGCTGAGTTA	900
901	AAACAAGTCA	CAGAAGTCTA	TGACCTGGTG	CGAGAAATGG	GCCTGTAATC	140	TGGGCTCTA	CAITTAAGC	AAAGCCCAA	AGCTGGAGTG	TTATCACTAG	1000
1001	CCAATTGTCC	CAACTTTGCA	AGTGTGTTTC	TCGGCAATGC	CTCAGGGCTTA	150	GGCATAATAG	GTATGTATCG	CGGAGAGATG	CCAAACACAG	AACTATTTTC	1100
1101	AGCAGCAGAA	AGCTATGCCA	AGATTTTGAA	AGAAAGCAAT	AAATTAAGT	160	TTTCTTCAT	AGACTCAC	GATGAAGAAA	AGAGGCTGC	AGAACACTTT	1200
1201	CTAAATGTGA	GTACGACACG	TCAAAATGAT	TATGAGTAAT	TAAAGAAAGT	170	GGACAAGTCA	AAATGTCAAT	CCCTGAAGAA	AGAGATATTC	TTTTCATGGG	1300
1301	TAATGAAGCG	GCAAAATTGG	CAGAAGCTTT	CCAAAAATCA	TTAAGAAAGC	180	CTAGTCATA	AGATCTCAA	TCTATTATAG	GAGAAAAAGT	GAACACTGTA	1400
1401	CTGGAACAT	TGGAATTACC	TACTATCAGT	AGACCTACCA	AACCGACCAT	190	ATTGTACAG	CCGAAGTTAG	CATGGACAGA	CAAAGGTGGG	GCAATCAAAA	1500
1501	CTGAAGCAAA	GCAACAATC	AAAGTTATGG	ATCCTATTGA	AGAAAGAGAG	200	TTTACTGAG	AAAGGTGCT	GCCTCCAGT	GATGGGAAA	CTCCTGCAGA	1600
1601	AAAGAGTTG	AAACCACTAA	CCAATACTAA	AAAGAAGTCA	TCATTTACAC	210	AGAAAGAGAT	ACTTCATCAT	TAAAGTTGG	AGAAAGATGC	TCTAGACTTG	1700
1701	CTTTTCAGACA	ATGAAGAAAG	AGATGCAGAA	TTAGGGCTAT	TAAGAACACT	220	AGAAAGAGAT	AGCTTCTCAT	CAAGATTTGG	AGCAGAGATG	CAATCGATTG	1800
1801	AGGAGAAAT	AAGCATGATA	TGAGGCTAT	TAAGAACACT	CAACATTGCT	230	ACAGCGAGAC	CCACAGCAGC	AAGAGATGGG	ATCAGAGATG	CAATGATTTG	1900
1901	CATAAGGGAG	GAATTAAGTA	CAGACATAAT	AAAGAAGGCC	AAGGAAAG	240	CAGCAGAAAT	GATGGAAGAA	GAATGAACCC	AGCGACAAA	AATAGGAAC	2000
2001	GGTAGTGTA	AAATTAAGTA	AAAGGCAAG	GAGCTCAACA	AAATTTGTA	250	AGACGAGAGC	CAAAAGTGGT	AAATCCGAAGA	AGAAAGAGAA	CTAAAAGACA	2100
2101	CACAGGAAA	TAATCAAGAA	GATGACATTT	ACCAGTTAAT	TATGTAGTT	260	AAATAAATA	AAATGGGA	CAAGTGAAGA	TGGAGTCCCTA	TCTGTAGAC	2200
2201	ACCTATCAAG	GCATCCCTTA	CACAGCAGCT	GTTCAGTTG	ATCTAGTAGA	270	AAAGGACCTG	TTACCTGCAA	GCCTAACAAAT	ATGGTTCCCT	CTGTTTCAGG	2300
2301	CAATACACC	ACCAGCAGTT	CTGCTTGATC	AGCTAAAGAC	TCTGACTATA	280	ACTACTCTGT	ATGCTGCATC	ACAAAGTGGT	CCAACTACTAA	AGTGAATGC	2400
2401	ATCGGCCAG	GGTGACAGCA	TGCTGTACT	TCCCAAAAG	TTTGAAGTCA	290	ATGCGACTGT	AGCATTTGAC	GAATATAGCA	AATTAGAAT	TGACAACTT	2500
2501	ACATCTCTAT	AGTAAACAC	AGTTTACTTA	ACAACCATGA	AACCATATGG	300	GTTACATATC	AGCTTTTGA	GCTCGGCCAA	ACCAGTTGGC	AAAAAAACAC	2600
2601	ATGATCTAAT	CGCATATGC	GATTTATGG	ATCTAGAAA	GAACACACCA	310	AAGCCAAAT	TGCACCTTAT	CGGGAGCTGA	TCTATCAAGG	AGAGTGAATC	2700
2701	AGCCACTGTT	GAAGCTGCAA	TAAGCAGTGA	AGCAGACCAA	GCTCTAACAC	320	AGAACTAGGA	GCATATGTCC	AGGCTGAAGG	CATAAGTAAA	ATATGCAAGA	2800
2801	AATCCCAAG	GCATATTCAA	GAAGCTTGG	GCTGGACCC	AAGTTATAGT	330	AGCAACTGTA	CCAAGAACTA	CCAACTCTAT	TCTATAGACT	AAAAAGTCG	2900
2901	CTTGGAGCCA	TCAAGGAACA	AGATATGTGC	TGAAGTCCAG	ATAACAGCCA	340	AACGGACAA	ATAAAAATG	CTTGAAGT	GGTGATCAAT	TTTTCATTGC	3000
3001	CATTTAGTT	ATATAAAAT	CAAGTTAGNA	TAAGATTTAA	ATCAATCAAG	350	AGCATATAA	CTAGAGGATA	TCTTAGTGT	GTGAGGACAG	ATTTCATTAC	3100
3101	TAATAACACC	TCAACACGGT	CTTAAGAGA	GCTACCTTAA	AGAAATCATG	360	ATGACCTAG	CCTAATAAAA	ACAGAATTAG	ATCTGACCAA	GGTGCACATA	3200
3201	CAACGTTTTT	ACATTAGAGG	TGGGTGATGT	AGAAACCTT	ACATGTTCTG	370	TGAGAAATCCC	AGACAATCTA	GGTTGTTCT	AGAGCAATA	GCATCGGTG	3300
3301	AGAGAGCTCA	AAACAGTCTC	TGCTGACCAA	TTGGCAAGAG	AGGAACAAAT	380	CGGCTTGAGA	GTGAAGTCAC	AGCAATTAAG	AATGCCCTCA	AAACGACCAA	3400
3401	TTGCAACAGC	AGCTGCAGTC	ACAGCAGGTG	TTGCAATTGC	CAAAACCATC	390	TGAGAGAGCT	GAAGACTTTT	GTGAGCAAGA	ATTAACTCG	TGCAATCAAC	3500
3501	TGAAGCAGTA	TCTACATTGG	GGAATGGAGT	TGAGTGTG	GCAACTGCAG	400	ATTCAACAGA	AGGTTTCTAA	ATGTTGTGGC	GGAAATTTCA	GACATGCTG	3600
3601	AAAAACAAGT	CGACATTTGA	TGACCTAAAA	ATGGCGTTA	GCTTCACTCA	410	AGGGCGGTTT	CTAACATGCC	GACATCTGCA	GGACAAATAA	AAITGATGTT	3700
3701	GAATAACACC	AGCAATATCT	TTGAGCTTAA	TGACAGATGC	TGAAGTAGCC	420						3800

Fig. 37A

HMPV strain 83 (continued)

3801	GGAGAACCGT	GCGATGGTGC	GAAGNAAGGG	GTTCGGAATC	CTGATAGGGG	TCTACGGGAG	CTCCGTAATT	TACATGGTGC	AGCTGCCAAT	CTTTGGCGTT	3900
3901	ATAGACACGC	CTTGCTGGAT	AGTAAAGCA	GCCCCTCTTT	GTTCGGGAAA	AAAGGGAAC	TATGCTTGCC	TCCTAGAGA	AGACCAAGGG	TGTTATGTCT	4000
4001	AGATCGAGG	GTCAACTGTT	TACTACCCAA	ATGAGAGAA	CTTCGGAACA	AGAGGAGCC	ATGCTTTTGG	CGTACAGCA	CGCGGAATTA	ATGTTGCTGA	4100
4101	GCAATCAAG	GAGTGAACA	TCAACATATC	CACATACAAAT	TACCCATGCA	AAGTCAGCAC	AGGAAGACAT	CCTATCAGTA	TGGTTGCACT	GTCTCTCTT	4200
4201	GGGCTCTGG	TGCTTGCTA	CNAAGGAGTA	AGCTGTCCA	TTGGCAGCAA	CAGAGTAGGG	ATCATCAAGC	AGCTGAACA	GGGTTGCTCC	TATATAACCA	4300
4301	ACCAAGATGC	AGACACAGTG	ACNATAGACA	ACACTGTATA	TCAGCTAAGC	AAAGTTGAGG	GTGAACAGCA	TGTTATAAAA	GGCAGACCCAG	TGTCAGGCAG	4400
4401	CITTGATCCA	ATCAAGTTTC	CTGAAGATCA	ATTCAATGTT	GCATTTGACC	AAAGTTTGTG	GAACATTGAA	AACAGCCAGG	CCTTGGTAGA	TCATCAAAAC	4500
4501	AGATCCCTAA	GCAGTGCAGA	GAAGGGAAT	ACTGGCTTCA	TCATTTGAAT	AATTTCTAAT	GCTGCTTGTG	GCTCTAGCAT	GATCTCTAGT	AGCATCTTCA	4600
4601	TTATAATCAA	GAACAACAAAG	AAACCAACGG	GAGCACTTCC	AGAGCTGAGT	GGTGTACAAA	ACAATGGCTT	CATACCCACAC	AGTTAGTTAA	TTAAAAATAA	4700
4701	ATAAAAATT	GGGACAAATC	ATAATGTCTC	GCAAGGCTCC	ATGCAAAAT	GAAGTGGGG	GCAATGTCAA	CAGAGGAAGT	GAGTGTAAAT	TTAACCCAAA	4800
4801	TTACTGGAGT	TGGCCAGATA	GATACTTATT	AATAAGATCA	AACATCTAT	TAAATCAGCT	TTTAAGGAAC	ACTGATAGAG	CTGATGGCCT	ATCAATAATA	4900
4901	TCAGGCGGAG	GCAGAGAAGA	CAGAACGCAA	GATTTTGTTC	TAGGTTCCAC	CAATGTGGTT	CAAGGTTTAA	TTGATGATAA	CCAAAGCAT	ACAAAGCTG	5000
5001	CAGCTGCTA	CAGTCTACAC	ACATAATCA	AGCACTACA	AGAATGTAA	GTAGGCGAGG	CTAGAGATAG	CAAACTATCT	GACAGCAAGC	ATGTGGCACT	5100
5101	CCATAACTTA	ATCTTATCTT	ACATGGAGT	GAGCAAACT	CCCGATCTT	TAATCAACAA	TCTCAAAAGA	CTGCCGAGAG	AAAACTGAA	AAATTAGCA	5200
5201	AGCTGATAA	TTGACTTATC	AGCAGCGCT	GACAATGACT	CTTCTATGC	CCTGCAAGAC	AGTGAAGCA	TTAATCAAGT	GCAGTGAGCA	TGGTCTGTT	5300
5301	TTCACTACTA	TAGAGGTTGA	TGAATGATA	TGGACTCAA	AAGAATTAAA	AGAAGCTTTG	TCCGATGGGA	TAGTGAAGTC	TCACACCAAC	ATTACAAAT	5400
5401	GTATTTTAGA	AAACATAGAA	ATTATATATG	TCAAGGCTTA	CTTAAGTTAG	TAAAAACACA	TCAGATGGGG	ATAAGTGACA	ATGATAACAT	TAGATGTCT	5500
5501	TAAAGTGAT	GGGTCTTCAA	AAACATGTAC	TCACCTCAA	AAATATATCA	GAAGCCATTC	TGGTAAAGTG	CTTATTGCAC	TTAAGTTAAT	ATTAGCTTAA	5600
5601	CTAACATTTT	TCACAATTAAC	AATCACTATA	AATTACATAA	AAATGAANA	CAACAGTATT	TTAAAGATT	AATTTCAAGG	TATACAGATT	CTGTAAATAA	5700
5701	CATCAAAATC	CACATCCGTC	ACACCAAGA	CCACTGTAGA	CCATGATATA	ATATATAAT	TTTATGCTTT	AAACCTGAGG	ACTCAAAAT	CAACAGTTGT	5800
5801	CAAGGACACA	TGCTGGAAA	TAAGCAGAAA	TCAATGCACA	AAATATAACA	CATATACATA	GTAGATGCG	ATTGCATATA	CACAATTGAG	TGGNAGTGT	5900
5901	ATAGACTGA	CAGATCTATG	ACCCAATCTT	GAATGTTAA	ACTAGACTAG	GATCCGCTTA	AGACTATCAG	TTCAATAGTT	TAGTTATTTT	AAAAATTTT	6000
6001	AGATCACTGA	AATAGATTAA	AGCAATCTTA	GCAATAGGTA	ATAATTAA	GCTTAATTT	AATTAACA	TTATTTAA	TCGTAACAT	TTAATTTACA	6100
6101	AGATTAAGTA	AGATATGG	GACAGTAGT	TATGGAGGT	AAAGTAGAGA	ACATTCGAGC	AATAGACATG	CTCAAGCAA	GAGTGAANA	TGGTGGCA	6200
6201	AGTAAACAC	AAATATATG	AGATATGG	GACAGTAGT	TATGGAGGT	AAAGTAGAGA	ACATTCGAGC	AATAGACATG	CTCAAGCAA	GAGTGAANA	6300
6301	CGTAGCAAT	GCITTAATAA	TGCTTCTTTA	ATCCTCATAG	GAATTAATC	ACTGAGTATA	GCTCTCAATA	TCTATCTGAT	CATAAATCTAC	ACAAATCAAA	6400
6401	AAACCTCATC	TGAATCAGAA	CACACACACA	GCTCACACC	CACAGATCC	AACAGGAAG	CTTCAACAT	CTCCACAG	AACCCAGACA	TCAATCCAAA	6500
6501	CTCACAGAT	CCAATCAAC	AGTCCACAGA	AAACCCACA	CTCAACCCCG	CAGCATCAGT	GAGCCCATCA	GAACACAGAC	CAGCATCAAC	ACCAGACACA	6600
6601	ACAAACCGCC	TGCTCTCCGT	AGACAGGTCC	ACAGCACAA	CAAGTGAAG	CAGACAAAG	ACAAACCCGA	CAGTCCACAC	AGAAACAAAC	CCAAGCACAG	6700
6701	CTTCCAGTAC	ACATCCCCA	CCACGGGCAA	CAACGAGGC	AATCCGCAGA	GCCACCACTT	TCCGATGAG	CAGCACAGGA	AAAAGACCAA	GCACACCAAC	6800
6801	AGTCCAGTCC	GACAGCAGCA	CCACAACCCA	AAATCATGAA	GAACAGGTT	AACATGTAGT	TACCAATAT	CAAGAACA	AAAGACAACT	CACAATCTCC	6900
6901	AAATATAAAC	CAAAATAGTT	AACAAAATAT	ACGAGATAGC	TCTAAGTAA	ACATTTTGGC	CACATCTAA	CAACATCACA	ACCATCTCAA	GAAGAANAAC	7000
7001	CTAAACACAG	AGCATCCAAG	AGACAAATAG	CAATGGATCC	TCTTAATGAA	TCCACTGTTA	ATGCTATCT	CCCTGATTCG	TACCTTAAG	GAGTAATTTT	7100
7101	TGGGCAAAAC	AGCATCCAAG	AGACAAATAG	CAATGGATCC	TCTTAATGAA	TAAAAATAGA	CAACACTGCA	AAAGTGGCCA	TAGAGAATCC	TGTTATTGAG	7200
7201	TTTATGTA	ACTAATGCAA	TTGGTTATG	TCTCTTAAA	AGACCTACT	CAAGGTAGTA	GAGCCAGTAA	ATATGATATG	TGAATATATG	AGAAATGTAC	7300
7301	CATGTGAGAC	TCAAAATATG	AGTCAATTTCT	AAAATGAAA	TATCATGATA	ATTAGCACTC	TCAAATGAA	TATGATATGT	TATGGCTGC	AATTAAGTAC	7400
7401	ACAGTTGTA	GCTCACACTA	TTGAACAGT	TTTTAACAG	GAGTAAAC	ATAGCACTC	TCAAATGAA	TATGATATGT	TATGGCTGC	AATTAAGTAC	7500
7501	TACATCAGAT	GATACCTCAA	TCCTAAGTTT	CATAGATGTA	GAATTTATAC	CTAGTTGGGT	AAGCAACTGG	TTTAGTAAT	GGTACAATCT	CAATAAGTTA	7600
7601	ATTTTGGAA	TCAGAAGAGA	GGAAGTAATA	AGAACGGGT	CAATCTTATG	CAGGTCATTG	GGTAAATTAG	TTTTTATTGT	ATCATCATAT	GGATGATCG	7700
7701	TCAGAGGCAA	CAAAAGCAA	AGAGTGAGCT	TCTTACATA	CAATCAACTG	TTAACATGGA	AAGATGTGAT	GTAAAGTAGA	TTAATGGCA	ATTTTGTAT	7800

HMPV strain 83 (continued)

7801	ATGGGTAAAGC	AATAGICTGA	ATGAAATATCA	GGAGGGGCTA	GGGTTGAGAA	GTAATCTGCA	AGGTAIGTTA	ACTAATAAAC	TATATGAAC	TGTAGATTAT	7900
7901	ATGCTAAGCT	TATGTTGCAA	TGAAGGTTTC	TCATTGTGCA	AAGAGTTTCA	AGGTTTAT	ATGAGTGA	TCCTTAGGAT	TACTGAACAT	GCTCAATTCA	8000
8001	GTACTAGATT	TAGAAATATG	TATTTGAATG	GACTTAACGA	CAAGTTTACA	AAATTAATA	ATAAACAAC	ACTCAGAGTT	CATGATACG	TCTAGAGAA	8100
8101	TAATGATTAT	CCAATGTATG	AAGTTGTACT	TAAATATTAT	GGAGATACCT	TGAGATGTAT	CAAAATATTA	ATCAATAAAA	ACTTAGAGAA	TGCTGACAAA	8200
8201	TTATACTATA	TATTCAGAA	TTTTGGTCAT	CCATGGTAG	ATGAAAGAGA	TGCAATGGAT	GCTGTCAAT	TAAACAATGA	ATCAACAAA	ATCCTAAGGT	8300
8301	TGGAGAGCTT	GACAGAACTA	AGAGGGGCAT	TCATATTAA	GATTATCANA	GGATTTGTGG	ACAAACAACA	AGGTGGCCC	AAATTAATA	ACTTAAGAT	8400
8401	GCTTAGCAAA	AGATGGACTA	TGTACTTCAA	AGCTAAAT	TACCCAGTC	AACTCGAATT	AAGTGAACAA	GACTTCTAG	AGCTTGCTG	AATACAAATT	8500
8501	GAACAAGAGT	TTTCTGTTC	TGAATAAAC	AATCTTGAGA	TGGTATTAAA	TGACAAAGCC	ATATCCTCA	AACAAAGATT	ATATGGTCT	GTGTATCCAA	8600
8601	AGATTTACTT	ACCTGAGAC	ATAAATAATC	GATATTGAGA	AGAAACTTTC	AATGCGAGTG	ATAGTCTCAA	AACAAAGA	GACTACTAG	ACTATTTAAA	8700
8701	AGATAATAAA	TTTGATCAA	AGGAACITAA	AAGTTATGTA	GTTAGACAA	AAATTTAAA	CGATAAGGAG	CACATTTGCT	CATTAACTGG	AAAAGAAAGA	8800
8801	GAATTAAGTG	TAGGTAGAAT	GTTTGCTATG	CAACAGGAA	AACAGCGACA	AAATCAATA	TTGCGAGAAA	AATTTGTAGC	TGATAACAT	GTACCTTTCT	8900
8901	TCCCGGAAC	CTTAACAAAG	TATGGTGATC	TAGATCTTCA	GAGAATAATG	GAATCAAA	TAGAACTTTC	TTCTATCAA	ACCAGAAAG	ATGATAGTTA	9000
9001	TAATAATTAC	ATTGCAAGAG	CATCCATAGT	AACAGATTG	AGCAAGTTCA	TAATGACTACA	ATGATATGTG	CCTATAGACA	TGACCCACCA	GAACAAAG	9100
9101	GAATTACATG	GAACACAAAG	CTTATCTGT	TGGTTACATC	TTATCGTTCC	CACATGGGG	GTATTGAAG	ATGGTGTCAA	AACTCTGGA	CAATGGAAGC	9200
9201	GTGAATATGA	TATAGATAAG	ATAGAAGAGC	AAAGTGGTCT	ATATAGATAT	CTTTATTAAA	CGGTGACAA	CAATCAATAG	ATGTAAGTAA	ACCAGTCAAG	9300
9301	TATATCTTAA	TTGGATGTTG	TATCTGTAAA	GACACGGTGT	CAATAGACAT	AATGCTAATA	GAATAAGAG	ATGCATACAG	AAATATAGG	CATAAACTTA	9400
9401	TTATCTGAAG	GTTTAGATGA	AGTGAAGCA	GATTATCGCT	TAGCAGTAAA	AAATCAATCTG	AAGGAGTGT	CAATCTACC	CCTATAAAA	AGGCTTGAG	9500
9501	AAGAAGGGGA	AACATATATA	TCAAGGATC	GATTATCGCT	TAGCAGTAAA	AGTCAATAGG	GAGTCTATCT	CAAGAAATTAG	AATTTAGGG	AGAAAGCAT	9600
9601	AGTAGGACCA	TGGATAAACA	CAATATTAGA	TGACATTAAA	ACTAGTGTG	TGAATCAAG	CAATCTCTT	TGGCAGGAA	ACAGTTATC	AAACAATA	9700
9701	ATAGTTAGTC	TGATATTAG	AACTTCTGG	CTGTATACT	TATACATGCA	GAGGTAGTAG	ATCTATGGAT	GAACATACCA	ATGCAATTTG	GAGGAGGAGA	9800
9801	ATAAACATCT	AACATCAGTG	CAGAGATTTT	TGAAATTTAA	AAGGAAAT	CTGAGGCAAT	CAGCCATGTA	GATATTCTGT	TAAATAATC	AGCTAACATA	9900
9901	TCCATAGTCT	TTCTATAGAT	TTTCTTCAA	GCCTTACTAT	CAATAGAAA	AAATGACGT	GCTACACTGA	CAACACTAAT	GAGAGATCCT	CAAGCTGTTG	10000
10001	AAAAATGAA	CGAAGTAG	TTTTCTCAA	GCCTTACTAT	CAATAGAAA	AAATGACGT	GCTACACTGA	CAACACTAAT	GAGAGATCCT	CAAGCTGTTG	10100
10101	GATCAGAAC	ACAAGCAAAA	GTAACAGTG	ACATCAATAG	AACAGCAGTT	CACTGTATCT	TAACTCTTTC	CCCAATCAA	CTTTTCAGT	ATAGTGTCTAT	10200
10201	ACACTACAGC	AGAAATGAAG	AAGAAGTGG	AATCATTTGA	GAAACATAA	CACCTGTTA	TCTCATGGG	CTGAGAGTAT	TATATGAATC	ATTGCCCTTT	10300
10301	CACAAAGCTG	AAAAAGTTGT	AAACATGATA	TCAGGACAA	AATCTATAAC	CAACTTTATTA	CAGAGAACAT	CCGCTATTAA	TGGTGAAGAT	ATTGACAGGG	10400
10401	CTGTATCTAT	GATGTTGGAG	AATCTAGGAT	TATTATCTAG	AATATTGTCA	GATGTTGTTG	ATAGTATAGA	AATCTCAATC	AAATCTAATG	GTAGCTGAT	10500
10501	ATGTTGTCAA	ATCTCTAGGA	CTTTAAGAGA	GACATCATGG	AATAATATGG	AAATAGTTGG	AGTAACATCT	CCTAGCATCA	CTACATGTAT	GGATGTCTAT	10600
10601	TATGCAACTA	GTTCTCATTT	GAAGGGGATA	ATTATAGAAA	AGTTACAGC	TGACAGAACT	ACAAGGGTTC	AAAGAGCCCT	AAAAAGCCCT	TGGGTAGGGT	10700
10701	CGAGTACTCA	AGAGAAAAA	TTAGTACCTG	TTTATACAG	ACAAATTTCT	TCAAAACAC	AAAGAGACA	GCTAGAGCA	ATTGGAAAA	TGAGATGGGT	10800
10801	GTATAAAGG	ACACAGGCT	TGCGAGGAT	ACTCAACAG	ATCTGCTGTG	GGAGTTTAGG	CATTAGTAC	AAATGTGTA	AACCTTTAT	ACCTAGGTTT	10900
10901	ATGATGTTAA	ATTTCTTACA	TAGATTATCT	GTCAGTAGTA	GACCTATGGA	ATTCGCCAG	TCAGTCTCAG	CTTATAGAAC	ACAAATTAC	CAATTCGACA	11000
11001	CTAGTCTCTAT	TAATCAAGCA	CTAAGTGA	GATTTGGAA	TGAAGATATT	AACCTGTCT	TCCAAATGAG	AATCAGCTGT	GGAAATAGCA	TATGAGTGT	11100
11101	AGTAGAACAA	TTAACAGGTA	GAAGCCCAA	ACAGTTAGTT	TTAATACCCC	AATTAGAGA	AATAGACAT	ATGCCACCAC	CAGTGTTC	AGGGAATTC	11200
11201	AATTATAAAT	TAGTAGATAA	GATACTTCT	GATCAACATA	TCTTTAGTCC	GGACAAATA	GATATGTTAA	CACTAGGNA	AATGCTCATG	CCCCTATAA	11300
11301	AAGTTCAGAA	AACAGATCAG	TTCTTAATA	AGAGAGAAA	TTATTTCCAT	GGAAACAACT	TTATTAGTC	TTATCAGCA	GCATTAGCAT	GTCATTGGTG	11400
11401	TGGATATTTA	ACAGAACAA	GCATAGAAA	TAATTTTTC	AAGAAGACT	GGGTGACGG	GTTTATATCA	TAGTAGCTT	TTATGGACTT	CAAAATTTT	11500
11501	CTATGTGCT	TTAAACTAA	ACTTTATGT	AGTTGGGAT	CTCAAGGAA	AAACATTA	TAGTAGATA	TAGTAGATGA	ATCAATAGAT	AAATTTGTA	11600
11601	GGATTGACAA	TACTTTTGG	AGAATGTTCA	GCAAGTTAT	GTTTGACCA	AAGGTTAAGA	AAAGGATAAT	GTTATATGAT	GTAAATTTCC	TATCACTAGT	11700
11701	AGGCTACATA	GGGTTAAGA	ACTGGTTTAT	AGAGCAGTTG	AGATCAGCTG	AATTGCAATGA	AATACCTTGG	ATTGCTAATG	CCGAGGTTGA	TTTGGTTGAG	11800

HMPV strain 83 (continued)

11801	ATCAAGTCAA	TTAAAATCTA	TTTGCAACTG	ATAGAACAAC	GCTTATTTT	AAGAATAA	ACT	GTTTGAAC	ATACAGATAT	GGCACATGCT	CTCACACGAT	11900
11901	TAATCAGAAA	GAAGTTAATG	TGTGATAATG	CACGTGTTAC	CCCAATTTCA	TCCCAATGG	TTAACTTAAC	TCAAGTTATT	GATCCACAA	CACAATTAGA	12000	
12001	TTACTTCCCC	AAGATAACAT	TCGAAAGGCT	AAAAAATTAT	GACACAAGTT	CAAAATTATG	TAAAGGGAAG	CTAACAGAA	ATTACATGAT	ACTATTGCCA	12100	
12101	TGGCAGCATG	TTAATAGATA	TAACTTTGTC	TTTAGTTCTA	CTGGATGTAA	AGTTAGTCTG	AAACATGTGA	TTGGAAGAC	TATGAAAGAC	CTAAATCCTA	12200	
12201	AAGTTTTGTA	CTTTATTGGA	GAAGGAGCAG	GAAATTGGAT	GGCCAGAAC	GCATGTGAAT	ATCCTGATAT	TAAATTGTGA	TATAGAGTC	TGAAGATGA	12300	
12301	CCTTGATCAT	CATTATCCTC	TGGAATACCA	GAGAGTGATA	GGTGAATTAA	GCAGAATCAT	AGATAGTGGT	GAAGGACTTT	CAATGGAAC	AACAGACGCA	12400	
12401	ACTCAAAAAA	CTCATTTGGA	TTTGATACAC	AGGTAAGCA	AGATGCTTT	ATTAATAACT	TTATGTGATG	CAGAAATTAA	GGACAGAGAT	GATTTTTTTA	12500	
12501	AGATGGTAAT	TCTATGGAGA	AAACATGTAT	TATCATGCAG	AATTGCACT	ACTTATGGA	CGGACCTCTA	TTTTATCGCA	AAGTATCATG	CTAAAGACTG	12600	
12601	CAATGTAAAA	TTACCTTTT	TTGTGAGATC	AGTTGCTACT	TTCAATTATG	AGGTAGTAA	GCTGTCAGGT	TCAGAATGCT	ACATACTCTT	AACACTAGGC	12700	
12701	CACCAACA	GTTTACCTTG	CCATGGAGAA	ATACAAAATT	CTAAGATGAA	AATAGCAGTG	TGTAATGATT	TTTTATGCTG	AAAAAACTC	GACAATAAAT	12800	
12801	CAATTGAAGC	TAATTGTAAA	TCACTTTTGT	CAGGCTTAG	AATACCTATA	AATAAGAAAG	AACTAGATAG	ACAGAGAAGA	TTATTAAAC	TACAAAGCAA	12900	
12901	TCATTCTCT	GTAGCAACAG	TTGGCGGTAG	CAAGATCATA	GAGTCTAAGT	GGTTAACAAA	CAAGCAAGT	ACAATAATTG	ATTGGTTAGA	ACATATTTTA	13000	
13001	AATTCCTCAA	AGGGCGAATT	AAATTATGAT	TTTTTTGAAG	CATTGGAGAA	CACCTTACCCT	AATATGATTA	AACTAATAGA	TAACTTAGGG	AATGCAGAGA	13100	
13101	TTAAAAA	ACTGATCAAGTA	ACAGGATACA	TGCTTGTAG	TAAAAATGA	AAATGATGA	AGATGACAAA	ATAGATGACA	ACTTCATACT	ATTCTAAAT	13200	
13201	AATTATTGTA	TTATGCAATT	ATATGATAGT	TAATTAAAT	TAAAAATTAA	AAATCAAAAG	TTAAAATTTA	AAACCTATCA	TTAAGTTTTAT	TAAAAATAAG	13300	
13301	AAATTATAAT	TGAATGTATA	CGGTTTTTTT	GCCGT							13335	

100 90 80 70 60 50 40 30 20 10

Fig. 37D

rHMPV - GFP

1	ACGCGAATA	AACGGGTATA	AATTAAGTGA	CAAAAATA	TGGGACAA	AGT	50	GAATAATGGT	AGCAGGGG	AGGAGCTGTT	CACCGGGGTG	GTGCCCATCC	100
101	TGGTCCAGCT	GGACGGCGAC	GTAAACGGCC	ACAAGTTTCAG	CGTGTCCGGC		60	GAGGCGAGG	GCAGTGGCC	CTACGGCAAG	CTGACCTGTA	AGTTTATCTG	200
201	CACCAACGGC	AGCTGCGCG	TGCCCTGGCC	CACCTTCGTT	ACCACCTGTA		70	CTTAGCGGT	GCAGTGGCTC	AGCGGTACC	CCGACCATAT	GAAGCAGCAC	300
301	GACTTCTTCA	AGTCCGGCAT	GCCCGAAGCC	TACCTCCAGG	AGCCACCAT		80	CTTCTTCAAG	GACGACGGCA	ACTACAAG	CCGCGCGGAG	GTGAAGTTCTG	400
401	AGGGCGACAC	CCTGGTGAAC	CGCATCGAGC	TGAAGGGCAT	CGATTCAAG		90	GAGACGGCA	ACATCTGGG	GCACAAGCTG	GAGTACAACT	ACAACAGCCA	500
501	CAACGTCTAT	ATCATGGCG	ACAAGCAGAA	GAACGGCATC	AAGTGAAT		100	TCAAGATCCG	CCACAACATC	GAGGACGGCA	CGGTGAGCT	CGCCGACCAC	600
601	TACGACGAGA	ACACCCCAT	CGCGACGGC	CCCGTGCTGC	TGCCGACAA		110	CCACTACCTG	AGCACCAGT	CGGCTGAG	CAAGACCCC	AACGAGAAGC	700
701	GGATACAT	GGTCTGCTG	GAGTTCGTG	CCCGCGCGG	GATCACTCTC		120	GGATGGAGC	AGTGTCAAA	GTAAGTTAAT	TAAAAGTG	GGACAAGTGA	800
801	AAATGICTCT	TCAAGGGATT	CACCTGAGT	ATCTATCAT	CAACATGCT		130	ATATTAAAG	AGTCTCAGTA	TACAATAAG	AGAGATGTAG	GCACAACAAC	900
901	AGCAGTGACA	CCCTCATCAT	TGCAACAGC	AATAACACTA	TTGTGTGGAG		140	AAATTCTATA	TGCTAAGCAT	GCTGATTACA	AATATGCTGC	AGAAATAGGA	1000
1001	ATACAATATA	TTAGCACAGC	TCTAGGATCA	GAGAGAGTAC	AGCAGATTCT		150	AAGAACTCA	GGCAGTGAAG	TCCAAGTGGT	TTTAACCGA	ACGTACTCTT	1100
1101	TGGGGAAGT	TAAAAACAA	AAAGGAGGAG	ATTACAGAT	GTTAGACATA		160	CACGGAGTAG	AGAAAAGCTG	GGTGAAGAG	ATAGACAAAG	AAGCAAGAAA	1200
1201	AACAATGGCA	ACTTTGCTTA	AGAATCATC	AGCAATATT	CCACAATATC		170	AGGGCTTTC	AGCAACGAGC	ACACCTATA	TCTTATTATG	TGTAGTGGCC	1300
1301	TTAATATTTA	CCAACTAGC	ATCAACTATA	GAAGTGGGAT	TAGAGACCCAC		180	AGTCAGAA	GCTAACCCGTG	TACTAAGTGA	TGCACCTCAA	AGATACCCTA	1400
1401	GGATGGACAT	ACCAAAATC	GCTAGATCTT	TCTATGATT	ATTTGAACAA		190	AAAGTGTATT	ACAGAAATTT	GTTCAATTGAG	TATGGCAAA	CATTAGGCTC	1500
1501	ATCTCTTACA	GGCAGCAAG	CAGAAAGTTT	ATTGTTAAT	ATATTCATGC		200	AAGCTTACCG	TGCTGGTCAA	ACAATGCTGA	GGTGGGAGT	CATTGCCAGG	1600
1601	TCATCTAACA	ATATAATGTT	AGGACATGTA	TCTGTCCAG	CTGAGTTAAA		210	ACAAGTCA	GAAGTCTATG	AGTGTGCTC	AGAAATGGGC	CCTGAATCTG	1700
1701	GGCTCTTACA	TTTAAGGCAA	AGCCCAAGAG	CTGAGCTGTT	ATCACTAGCC		220	AATGTCTCCA	ACTTTGCAAG	AGTTGTCTC	GGCAATGCCT	CAGGCTTAGG	1800
1801	CATAATAGGT	ATGTATCGCG	GGAGAGTGCC	AAACACAGAA	CTATTTTCAG		230	CACGAGAAAG	CTATGSCAAG	AGTTTGAAG	AAGCAATAA	AATTAACCTT	1900
1901	TCTTCTATTAG	GACTCACAGA	TGAAGAAAA	GAGGCTGCAG	ACACTTTCT		240	AAATGTGAGT	GACGACAGTC	AAATGATTA	TGAGTAATTA	AAAAGTGGG	2000
2001	ACAAGTCAAA	ATGTCATTCC	CTGAAGGAAA	AGATATTCTT	TTCAATGGTA		250	ATGAAGCGGC	AAAATTGGCA	GAAAGCTTTC	AAAAATCAAT	AAGAAAACCT	2100
2101	AGTCATAAAA	GATCTCAATC	TATTATAGGA	GAAGAGTGA	ACACTGTATC		260	TGAACATTTG	GAATTACCTA	CTATCAGTAG	ACCTACCAA	CCGACCATAT	2200
2201	TGTCAGAGCC	GAAGTTAGCA	TGGACAGACA	AAGGTGGGCG	AATCAAAACT		270	GAAGCAATG	AAACAATCAA	AGTTATGGAT	CCTATTGAAG	AAGAAGAGTT	2300
2301	TACTGAGAAA	AGGGTGCTGC	CCTCCAGTGA	TGGGAAAAC	CCTGCAGAAA		280	AGAGTTGAA	ACCATCAACC	AATACTAAA	AGAAAGTCTC	ATTACACCA	2400
2401	AATGACACAG	GAATATAC	AAAGTTGGAG	AAAGATGCTC	TAGACTTGCT		290	TTTACAGCAAT	GAAGAAGAG	ATGCAGATC	CTCAATCTTA	ACCTTCGAAG	2500
2501	AAAGAGATAC	TTTATCATTA	AGCATTTGAAG	CCAGACTAGA	ATCGATTGAG		300	GAGAAATTA	GCATGATATT	AGGCTATTA	AGAACACTCA	ACATTGCTAC	2600
2601	AGCAGGACCC	ACAGCAGCAA	GAGATGGAT	CAGAGATGCA	ATGATTGGCA		310	TAAGGGGAGA	ACTAATAGCA	GACATAATA	AAGAAGCCAA	GGGAAAAGCA	2700
2701	GCAGAAATGA	TGGAAGAAGA	AATGAACCCAG	CGGACAAAAA	TAGGAAACCG		320	TAGTGTAAA	TTAACTGAAA	AGGCAAGGA	GCTCAACAA	ATTGTTGAAG	2800
2801	ACGAGAGCAC	AAGTGGTGA	TCCGAAGGAG	AAGAAGAACT	AAAAGACACA		330	CAGGAAAATA	ATCAAGAAGA	TGACATTTAC	CAGTTAATTA	TGTAGTTTAA	2900
2901	TAAATAATA	AAATGGGACA	AGTGAAATG	GAGTCTATC	TGGTAGACAC		340	CTATCAAGGC	ATCCCTTACA	CAGCAGCTGT	TCAAGTTGAT	CTAGTAGAAA	3000
3001	AGGACCTGTT	ACCTGCAAGC	CTAAACAATAT	GGTCCCTCCT	GTTTCAGGCC		350	AATACACCCAC	CAGCAGTTCT	CTTGTATCAG	CTAAGAGACTC	TGACTATAAT	3100
3101	TACTCTGTAT	GCTGTATCAC	ATATAGTACC	AATACTAAA	GTTAATGCTAT		360	CGGCCCGGG	TGCAGCAATG	TCTGTACTTC	CCAAAAGTT	TGAAGTCAAT	3200
3201	CGCATGTAG	CACCTTGACA	ATATAGCAA	TTAGAATTG	ACAAACTTAC		370	AGCTGTGAG	GTAATAACAG	TTTACTTAA	AACCATGAA	CCATATGGA	3300
3301	TGGTATCAAA	GTTTGTGAGC	TCGGCCAAAC	CAGTTGGCAA	AAAAACACAT		380	GATCTAATCG	CATTATGCGA	TTTTATGGAT	CTAGAAAAG	ACACACCAGT	3400
3401	TACAATACCA	GCATTTATCA	AATCAGTTTC	TATCAAGAG	AGTGAATCAG		390	CCACTGTTGA	AGCTGCAATA	AGCAGTGAAG	CAGACCAAGC	TCTAACACAA	3500
3501	GCCAAATATG	CACCTTATGC	GGGACTGATC	ATGATTATGA	CCATGAACAA		400	TCCCAAGGC	ATATTCAAGA	AGCTTGGAG	TGGGACCCAA	GTTATAGTAG	3600
3601	AACATAGGAGC	ATATGTCCAG	GCTGAAGACA	TAAGTAATAT	ATGCAAGACT		410	TGGAGCCATC	AAGGAACAG	ATGTGTGCTG	AGTCCAGT	CAACAGCAAG	3700
3701	CAACCTGACC	AAGAATCTACC	AACTCTATTC	TATAGACTAA	AAAGTCGCCA		420	TTTTAGTTAT	ATAAAAAATCA	AGTTAGATA	AGAATGCTAG	CAATCAAGAA	3800

Fig. 38A

rHMPV-GFP (continued)

3801	CGGGACAAAT	AAAAATGTCT	TGAAAGTGG	TGATCAITTT	TTCAATTGCTA	ATAACACCTC	AACACGGTCT	TAAAGAGAGC	TACCTAGAAG	AATCATGTAG	3900
3901	CACTATAACT	GAGGGATATC	TTAGTGTCT	GAGGACAGGT	TGGTATACCA	ACGTTTTTAC	ATTAGAGGTG	GGTGTATGTAG	AAAACCTTAC	ATGTTCTGAT	4000
4001	GGACCTTAGC	TAATAAAAC	AGAATTAGT	CTGACCAAAA	TGTCACCTAAG	AGAGCTCAAA	ACAGTCTCTG	CTGACCAAT	GGCAAGAGAG	GAACAAATG	4100
4101	AGAATCCAG	ACAATCTAG	TTTGTCTAG	GAGCAATAGC	ACTCGGTGT	GCAACAGCAG	CTGCAGTCA	AGCAGGTGT	GCAATTGCCA	AAACCATCCG	4200
4201	CTTGAGAGT	GAAGTCACAG	CAATTAGAA	TGCCCTCAA	ACGACCAATG	AAGCAGTATC	TACATTGGGG	AATGGAGTTC	GAGTGTGGC	AACCTGCAGT	4300
4301	AGAGAGCTGA	AGACTTTGT	GAGCAAGAA	TAACTCTGT	CAATCAACAA	AAACAAGTGC	GACATTGATG	ACCTAAAAAT	GGCGTTAGC	TTCACTCAAT	4400
4401	TCAACAGAAG	GTTTCTAAAT	GTGTGCGG	AATTTTCAGA	TAATGCTGGA	ATAACACCCAG	CAATATCTTT	GGACTTAATG	ACGATGCTG	AATAGGCCAG	4500
4501	GGCCGTTTCT	AACATGCCGA	CATCTGCAGG	ACAAATAAAA	TTGATGTTGG	AGAACCCGTG	GATGGTGCGA	AGAAAGGGGT	TCGGAATCCT	GATAGGGGTC	4600
4601	TACGGAGCT	CCGTAAITTA	CATGGTGAG	CTGCCAATCT	TTGGCGTTAT	AGACACGGCT	TGCTGGATAG	TAAAAGCAGC	CCCTTCTTGT	TCCGGAAAAA	4700
4701	AGGGAACCTA	TGCTTGCTC	TAAAGAGAAG	ACCAAGGGTG	GTATTGTGAG	AATGCAGGGT	CAACTGTTTA	CTACCCCAAT	GAGRAAGACT	GTGAACAAG	4800
4801	AGGAGACCAT	GTCTTTTGG	ACACAGCAGC	GGGAATTAAT	GTTCCTGAGC	GGCTCTGGT	GCTTGCTACA	ACCATATCCA	CTCAAAATTA	CCCATGAAA	4900
4901	GTGAGCAGC	GAAGACATCC	TATCAGTATG	GTGCACTGT	CTCCTCTGG	CAAGATGCGAG	ACACAGTGC	AATAGACAAC	CTGTATATC	GGCAGCAACA	5000
5001	GAGTAGGGAT	CATCAAGCAG	CTGAACAAGG	GTGCTCCTA	TATAACCAAC	TTGATCCAA	CAAGTTTCT	GAAGATCAAT	TCAATGTTC	ACTTGACCAA	5100
5101	AGTTGAGGGT	GAACAGCATG	TTATAAAGG	CAGCAGGCT	TCAAGCAGCT	AATCCTAAGC	AGTGCAGAGA	AGGGAATATC	TGGCTTCATC	ATTGTAATA	5200
5201	GTCTTAATTC	TGCTCTTGG	TCTAGCATGA	TCCTAGTGAG	CATCTTCAAT	ATAATCAAGA	AAACAAGAA	ACCAACGGGA	GCACCTCCAG	AGCTAGTGG	5300
5301	TGTCACAAAC	AATGGCTTCA	TACCACACAG	TTAGTTAAT	AAAAATAAAA	TAAATTTGG	GACAAATCAT	AATGTCTCGC	AAGCTCCAT	GCAATATGA	5400
5401	GTGTCACAAAC	AATGGCTTCA	TACCACACAG	TTAGTTAAT	AAAAATAAAA	ACTGGAGTGG	GCACAGATAGA	TACTTATTA	TAAGATCAAA	CTATCTATTA	5500
5501	AGTGGGGG	AAATGCAACA	GAGGAAGTGA	GTGTAAGTT	AACCAACAAT	AGGCGCAGGC	AGAGAAGACA	GAAGCAAGA	TTTTTGTCTA	GGTCCACCA	5600
5601	AATCAGCTTT	TAAGRAACAC	TGATAGAGCT	GATGGCCTAT	CAATAATATC	GCCTGTCTACA	GCTACACAA	CATAATCAAG	CAACTACAAG	AAGTTGAAGT	5700
5701	ATGGGTTTCA	AGGTTATATT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATACTTAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	5800
5801	TAGCAAGCT	AGAGATAGCA	AACATCTGA	CAGCAAGCAT	GTGGCACTCC	GTAATTAAT	GACTTCTAC	AACATAAAA	TTACATAAAA	GTAGAAAAA	5900
5901	ATCAACAAAT	TCAAAAGACT	CCGAGAGAA	AAACTGAAA	AATTAGCAAA	TCAAATACCA	CATCCGTAC	AACCAAGACC	ACTTAGACC	ATGATATAAC	6000
6001	TGCAAGACAG	TGAAAGCAT	AATCAAGTGC	AGTGAGCATG	GTCTGTCTT	AGGACATAT	GAGGTTGATG	AAATGATATG	GACTCAAAA	TCAATGCCCC	6100
6101	AGCTTTGTC	CGATGGGATA	GTGAAGTCTC	ACACCAACAT	TTACAATGT	TATTTAGAAA	ACATAGAAAT	TATATATGTC	AAGCTTACT	TAAGTTAGTA	6200
6201	AAAAACATC	AGAGTGGGAT	AAGTGACAAT	GATAACATTA	GATGTCAITTA	AAAGTGATGG	GTCTTCAAAA	ACATGTACTC	ACCTCAAAA	AATAATCAA	6300
6301	GACCATCTG	GTAAAGTGT	TATTGCACTT	AAGTTAATAT	TAGCTTTACT	AACATTTTC	ACAATAACA	TCACTATAAA	TTACATAAAA	GTAGAAAAA	6400
6401	ATCTACAAAT	ATGCCAGTCA	AAAACCTGAAT	CAGACAAAGA	AGACTCACCA	TCAAATACCA	CATCCGTAC	AACCAAGACC	ACTTAGACC	ATGATATAAC	6500
6501	ACAGTATTTT	AAAAGATTAA	TTCAAGGTA	TACAGATTCT	GTAATTAACA	AGGACACATG	CTGGAATAA	AGCAGAATC	AATGCACAAA	TATACAACA	6600
6601	TATRAATTTT	TATGCTTTAA	ACCTGAGGAC	TCAAAATCA	ACAGTTGTGA	TAGACTGACA	GATCTATGCA	GAACAATC	AAATCAGCA	GCTAGAGCAT	6700
6701	ATCATACAGT	AGAATGCCAT	TGCATATACA	CAATTGAGTG	GAAGTGCTAT	CACCACTCAA	TAGATTAAAC	CCAATCTTGA	ATGTTAAAC	TAGACTAGGA	6800
6801	TCCGTCTAGT	ACTATCAGTT	CAATAGTTTA	GTTATTTTAA	AATATTGAG	AATAGGTAAG	TTTCTATGGC	ACTTCATAGC	AATAGGTAAT	AATTAAACAG	6900
6901	TTAATTATAA	TTAAACATTT	ATTTAAATAT	GTAACTATTT	AATTTACAAA	GTAAAAACA	AAATATGGGA	CAAGTAGTTA	TGGAGGTGAA	AGTAGAGAAC	7000
7001	ATTCGAGCAA	TAGACATGCT	CAAGCAAGA	GTGAAATATC	GTGTGGCAGC	TAGCAAAATG	TTTAAATATG	CTTCTTAAT	CCTCATAGGA	ATAACTACAC	7100
7101	TGAGTATAGC	TCTCATATC	TATCTGATCA	TAACTATAC	AATACAAAA	ACCTCATCTG	AATCAGNACA	CCACACGAGC	TCACACCCCA	CAGNATCCAA	7200
7201	CAAGGAAGCT	TCAACAATCT	CCACAGACAA	CCCAGACAT	AATCCAACT	CACAGCATCC	AACCTCAAG	TCCACAGAAA	ACCCACACAT	CAACCCCGCA	7300
7301	GCATCAGTGA	GCCCATCAGA	AACAGNACCA	GCATCAACAC	AAGCAACAC	AACCCGCTG	TCCTCCGTAG	ACAGGTCAC	AGCAACACCA	AGTGAAGCA	7400
7401	GAACAAAGAC	AAAACCGACA	GTCCACACAA	GAACAACCC	CAGCAGACT	TCCAGTACAC	AATCCCAAC	ACGGGCAACA	ACGAAGGCAA	TCCGACAGC	7500
7501	CACCACTTTC	CGCATGAGCA	GCACAGGAAA	AAGACCAACC	ACAACATCAG	TCCAGTCCGA	CAGCAGCACC	ACAACCAAAA	ATCATGAAGA	AACAGGTTCA	7600
7601	CGCAACCCAC	AGGCATCTGT	AAGCACAATG	CAAACTAGC	ACACCAACA	TATAAACCA	AATTAGTTAA	CAAAAATAC	GAGATAGCTC	TAAAGTAAAA	7700
7701	CATGTAGGTA	CCAACAATCA	AGAAACCAAA	AGACAACCTCA	CAATCTCCCT	AAAAACAGCA	CGACACCATG	TCAGCTTTGC	TCAAACTCTCT	CTGGGAGAAA	7800

Fig. 38B

rHMPV-GFP (continued)

7801	CTTTTGCCCA	CATCTCAAGA	AAAGAACTG	GGCAAAACAG	CATCCAAAG	ACAAATAGCA	ATGGATCCTC	TTAATGAATC	7900
7901	CACGTGTAAT	GTCTATCTCC	CTTAAAGGA	GTAATTTCTT	TAATGCAAT	GGTTCATGTC	TCTTAAAAAG	ACCCTACTTA	8000
8001	AAAAATGACA	ACACTGCAAA	AGTTGCCATA	GAGATCTCTG	TAATGCAAT	TCAATTTCTAA	TATGAAAAATA	TCAGATTACA	8100
8101	AGGTAGTAGA	GCCAGTAAAC	ATGCAACATG	AAATATCTGA	TAATGTAAC	AGTTGTGAGC	TCAACATATT	GAACAGGTA	8200
8201	TAGCACTCTC	AAATGGAATA	TGATATGTGA	TTGGCTGCAA	TTAAAGTCTA	CATCAGATGA	TACCTCAATT	CTAAGTTTCA	8300
8301	AGTTGGGTAA	GCAACTGGTT	TAGTAATTGG	TACAATCTCA	ATAAGTTAAT	TTTGGAAATC	AGAAGAGAGG	AAGTAAATAG	8400
8401	GGTCAATTGG	TAAATTAGTT	TTTATTGTAT	CATCATATGG	ATGTATCGTC	AAGAGCAACA	AAAGCAAAAG	AGTGAGCTTC	8500
8501	AAACATGGAA	GATGTGATGT	TAAGTAGATT	TAATGCAAT	TTTTGTATAT	GGGTAGCAAA	TAGTCTGAAT	GAATAATCAGG	8600
8601	AATCTGCAAG	GTATGTTAAC	TAATAACTTA	TATGAACATG	TAGATTATAT	GCTAGCTTA	TGTTGCAATG	AAGTTTCTC	8700
8701	GTTTTATTAT	GAGTGAGATC	CTTAGGATTA	CTGAACATGC	TCAATTCAGT	ACTAGATTTA	GAATATCTTT	ATTGAATGGA	8800
8801	ATTAAAAAAT	AAAAACAGAC	TCAGAGTTCA	TAGTACCGTA	TTAGAAATA	ATGATTATCC	AATGTATGAA	GTTGTACTTA	8900
8901	AGATGTATCA	AAATTATTAAT	CAATAAAAAC	TTAGAGAAATG	CTGCAGAAAT	ATACTATATA	TTCCAGAAATTT	TTGGTCATCC	9000
9001	CAATGGATGC	TGTCAAATTA	AACTATGAAA	TCACAAAAT	CCTAAGGTTG	GAGAGCTTGA	CAGAACTAAG	AGGGCAATTC	9100
9101	ATTGTGGAC	AACAACAATA	GGTGCCCAA	AATTAATAAC	TTAAAGTTG	TTAGCAAAAG	ATGGACTATG	TACTTCAAG	9200
9201	CTCGAATTAA	GTGAACAAGA	CTTTCTAGAG	CTTGCTGCAA	TACAATTTGA	ACAAGAGTTT	TCTGTCTCTG	AAAAAACCAA	9300
9301	ACAAAGCCAT	ATCACCCTCT	AAAGATTAA	TATGCTCTGT	GTATCCAAAG	AATTACTTAC	CTGAGACGAT	AAAAATCGA	9400
9401	TGCGAGTGAT	AGTCTCAAAA	CAAGAAGAGT	ACTAGAGTAC	TATTTAAAAAG	ATAATAAATT	TGATCAAAAG	GAATTTAAAA	9500
9501	TATTTAAACG	ATAAGGACGA	CATTGCTCA	TTAATCTGGA	AAGAAAGAGA	ATTAAGTGTA	TAACAAGTA	TGGTGATCTA	9600
9601	TACAAATATT	GGCAGAAAAA	TTGTTAGCTG	ATAACATTTG	ACCTTTCTTC	CCGGAACCTT	GAACAAGTA	TGGTGATCTA	9700
9701	AATCAAAATCA	GAATTTCTTT	CTATCAAAAC	CAGAGAAAT	GATAGTTATA	ATAAATTACAT	TGCAAGAGCA	TCCATAGTAA	9800
9801	CAAGCCCTTTA	GATATGAAC	TACAGCGATC	TGTGCGGATG	TAGCAGACGA	ATTACATGGA	ACACAAGCT	TATCTGTGT	9900
9901	TGACTACAAAT	GATATGTGCC	TATAGACATG	CACCACCAGA	AACAAGAGT	GAATATGATA	TAGATAAAGT	AGAAGAGCAA	10000
10001	CATGGGCGGT	ATTGAAGGAT	GGTCTCAAAA	ACTCTGGACA	ATGGAAGCTA	TATCTTTATT	GGATGTTGTA	TCTGTAAAGA	10100
10101	TATTTAAACG	GTGACAACCA	ATCAATAGAT	GTAAGTAAAC	CAGTCAAGTT	ATCTGAAAGT	TTAGATGAAG	TGAAGSCAGA	10200
10201	TGCTAAAGAA	ATAAGAGAT	GCATACAGAA	ATATAGGCCA	TAAACTTTAA	GAAGGGGAAA	CATATATATC	AAGGATCTTT	10300
10301	TCAATCTGAA	GGAGTGTATC	ATCCTACCCC	TATAAAAAAG	GTCITGAGAG	TAGGACCATG	GATAAACACA	ATATTAGATG	10400
10401	TCAATAGGGA	GTCATATGCA	AGAAATTAGAA	TTTAGGGGAG	AAAGCATNAAT	AGTTAGTCTG	ATATTAGGAA	ACTTCTGGCT	10500
10501	AATCAAAGCA	ACATCCTTTG	GCAGGGAAC	AGTTATTCAA	ACAATTAAT	AAAACATTTAA	CATCAGTGCA	GAGATTTTTT	10600
10601	GGTAGTAGAT	CTATGGATGA	ACATACCMAAT	GCAATTTGGA	GGAGAGATC	CAGTAGTCTT	CTATAGATCT	TTCTATAGAA	10700
10701	GAGGCAATCA	GCCATGTAGA	TATTTCTGTTA	AAAATATCAG	CTAACATAAA	AAATGAAACG	AAAGTAAGTT	TCTTCAAAAGC	10800
10801	ATGAACGTGC	TACACTTGACA	ACACTAATGA	GAGATCTCTCA	AGCTGTTGGA	TCAGAACGAC	AAGCAAAAGT	AACAAGTGAC	10900
10901	CAGTACTCTTA	AGTCTTTTCC	CAAATCAACT	TTTCAGTGAT	AGTGTATATC	ACTACAGCAG	AAATGAAGAA	GAAGTGGGAA	11000
11001	CTGTGTTATC	CTCATGGGCT	GAGAGTAITA	GTGAATATAT	TGACCTTTCA	CAAGCTGAA	AAAGTTGTAA	ACATGATATC	11100
11101	ACTTATTACA	GAGAACATCC	GCTATTAAATG	TGTGAAGATAT	AGGCTGATAT	GATCTATGA	AGTTGGAGAA	TCTAGGATTA	11200
11201	AGTTGTTGAT	AGTATAGAAA	TTCCAATCAA	ATCTAATGGT	AGGCTGATAT	GTGTCTCAAT	CTCTAGGACT	TTAAGAGAGA	11300
11301	ATAGTTGGAG	TAACATCTCC	TAGCATCACT	ACATGTATGG	ATGTCAATATA	TGCAACTAGT	TCTCATTTGA	AAGGATAAT	11400
11401	ACAGAATAAC	AAGGGGTCAA	AGAGGTCCAA	AAAGCCCTTG	GGTAGGGTGG	AGTACTCAAG	AGAAAAAAT	AGTACTGTT	11500
11501	AAACAACAC	AGAGAACAGC	TAGAAGCAAT	TGAAAAATG	AGATGGGTGT	ATAAAGGAC	ACCAAGCTTG	CGACATTTAC	11600
11601	AGTTTAGGCA	TTAGTACAA	ATGTGTAAAT	CTTTTATTAC	CTAGGTTTAT	GAGTGTAAT	TTCTTACATA	GATTATCTGT	11700
11701	TCCAGCATC	AGTTCAGCT	TATAGAACAA	CAAATTACCA	TTTCGACACT	AGTCTATTAT	ATCAAGCACT	AAGTGAGAGA	11800

Fig. 38C

rHMPV-GFP (continued)

11801	CTTGGCTTTC	CAAAATGCAA	TCAGCTGTGG	AATTAGCATA	ATGAGTGTAG	TAGAACAATT	AACAGGTAGA	AGCCCAAAAC	AGTTAGTTTT	AATACCCCAA	11900
11901	TTAGAAGAGA	TAGACATTAT	GCCACCACCA	GTGTTTCAAG	GGAAATTCAA	TTATAAATA	GTAGATAAGA	TAACTTCTGA	TCAACATAATC	TTTAGTCCGG	12000
12001	ACAAATAGA	TATGTTAACA	CTAGGGAATA	TGCTCATGCC	CACATAAATA	GGTCAGAAA	CAGATCAGTT	CTTAAATAAG	AGAGATAATT	ATTTCCTAGG	12100
12101	AAACAATCTT	ATTGAGTCTT	TATCAGCAGC	ATTAGCATGT	CATTGTGTG	GGATATTAA	AGAACAATGC	ATAGAAAATA	ATATTTTCAA	GAAGACTGG	12200
12201	GGTGACGGGT	TTATATCAGA	TCATGCTTTT	ATGGACTTCA	AAATATCTCT	ATGTGCTTT	AAACTAAAC	TTTTATGTAG	TTGGGGATCT	CAAGGGAATA	12300
12301	ACATTAAAGA	TGAAGATATA	GTAGATGAAT	CAATAGATAA	ATTGTTAAGG	ATTGACAATA	CTTTTGGAG	AATGTTCCAG	AAAGTTATGT	TTGAACCAA	12400
12401	GGTTAAGAAA	AGGATAATGT	TATATGATGT	AAAATTCCTA	TCACTTAGAG	GCTACATAGG	GTTTAAGAAC	TGTTTATAG	AGCAGTTGAG	ATCAGCTGAA	12500
12501	TTGCAATGAA	TACCTTGGAT	TGTCATGCC	GAAGGTGATT	TGGTTGAGAT	CAAGTCAATT	AAAATCTATT	TGCAACTGAT	AGACAAAGC	TTATTTTAA	12600
12601	GAATAACTGT	TTTGAACAT	ACAGATATGG	CACATGCTCT	CACACGATTA	ATCAGAAAGA	AGTTAATGTG	TGATAATGCA	CTGTAAACCC	CAATTTTATC	12700
12701	CCCAATGGTT	AACITTAAC	AGTTATTTGA	TCCCACAACA	CAATTAGATT	ACTTCCCAA	GATAACATTC	GAAGGGCTAA	AAAATTATGA	CACAAGTTCA	12800
12801	AATTATGCTA	AAGGGAAGCT	AACAAGAAAT	TACATGATAC	TATTGCCATG	GCAGCATGTT	AATAGATATA	ACTTTGCTTT	TAGTTCTACT	GGATGTAAAG	12900
12901	TTAGTCTGAA	AACATGTATT	GGAAACTTAA	TGAAGACCT	AAATCCTAAA	TTTGTGACT	TTATTGGAGA	AGGAGCAGGA	AATTGGATGG	CCAGAACAGC	13000
13001	ATGTGAATAT	CCTGATATTA	AATTTGTATA	TAGAAGTCTG	AAAGATGACC	TTGATCATCA	TTATCCTCTG	GAATACCAGA	GAGTGATAGG	TGAATTAAAG	13100
13101	AGAAATCATAG	ATAGTGGTGA	AGGACTTTCA	ATGMAACAA	CAGACGCAAC	TCAAAAAAT	CATTGGGATT	TGATACACAG	GGTAAGCAAA	GATGCTTTAT	13200
13201	TAATAACTTT	ATGTGATGCA	GAATTTAAGG	ACAGAGATGA	TTTTTTTAA	ATGTAATTC	TATGGAGAAA	ACATGTATTA	TCATGCAGAA	TTTGCACTAC	13300
13301	TTATGGGACG	GACCTCTATT	TATTCGCAA	GTATCATGCT	AAAGACTGCA	ATGTAAATTT	ACCTTTTTTT	GTGAGATCAG	TTGCTACTTT	CATTATGCAG	13400
13401	GGTAGTAAGC	TGTCAGGTTT	AGAATGCTAC	ATACTCTTAA	CACTAGGCCA	CCACACAGT	TTACCTTGCC	ATGGAGAAAT	ACAAAATTTCT	AAGATGAAAA	13500
13501	TAGCAGTGTG	TAATGATTTT	TATGCTGCAA	AAAACTCGA	CAATAAATCA	ATTGACGCTA	ATTGTAATC	ACTTTTGTCA	GGGCTAAGAA	TACCTATAAA	13600
13601	TAGAAGAGAA	CTAGATAGAC	AGAGAAGATT	ATTAACACTA	CAAAAGCAATC	ATTCCTCTGT	AGCAACAGTT	GGCGGTAGCA	AGATCATAGA	GTCTAAGTGG	13700
13701	TTAACAAACA	AAGCAAGTAC	AATAATTGAT	TGGTTAGAAC	ATATTTTAA	TTCTCCAAAG	GGCGAATTA	ATTATGATTT	TTTTGAAGCA	TTGGAGAACA	13800
13801	CTTACCCTAA	TATGATTAAA	CTAATAGATA	ACTTAGGAA	TGCAGAGATT	AAAAAACTGA	TCAAAGTAAC	AGGATACATG	CTTTGTAAGTA	AAAAATGAAA	13900
13901	AATGATGAAG	ATGACAAAAT	AGATGACAAAC	TTCTACTAT	TCTAAATTAA	TTATTTGATT	ATGCAATTAT	ATGATAGATTA	ATTAAAAATTA	AAAAATTAAA	14000
14001	ATCAAAAGTT	AAAAATTAAA	ACCTATCATT	AAGTTTATTA	AAAAATAGAA	ATTATTAATTG	AATGTATACG	GTTTTTTTGC	CGT		14083
	10	20	30	40	50	60	70	80	90	100	

Fig. 38D

HMPV strain 75

	10	20	30	40	50	60	70	80	90	100
1	ACGCGAAAA	AACGCGTATA	AATTAATTC	CAACAAAAAC	GGACAAAAATA	AAAATGTC	TTCAAGGGAT	TCACCTAAGT	GATCTGTCT	ATAAACATGC
101	TATATTAAAA	GAGTCTCAAT	ACACAATAAA	AAAGATGTGA	GGCACCCAAA	CTGCAGTAC	ATTTTCATCA	TTGCAGCAG	AGATAACACT	TTTGTGTGA
201	GAGATTCTTT	GACTTAACA	TACTGATAC	AAATAGTGT	GACAGATCTG	GATACAATAT	ATTTCACCG	CTCTAGGAT	AGAAAGAGTA	CAACAGATT
301	TAGAAATTT	AGCAGTGAA	GTTCAAGTGG	TCTTAACCAA	GACATACTCT	TTAGGGAAG	GTAATAATAG	TAAAGGGAA	GAGTTGCAA	TGTTAGATT
401	ACATGAGTG	GAAAGAGTT	GGGTAGAAG	AATAGACAA	GAGGCAAGAA	AAACAATGGT	GACTTTGCTA	AGGAATCAT	CAGTAAACAT	CCCACAAAC
501	CAGAGGCCCT	CAGCACCGA	CACACCAATA	ATTTTATTAT	GTGTAGGTG	TTTAATATT	ACTAAACTAG	CATCAACAAT	AGAAGTTGGA	CTAGAGACTA
601	GAGTTAGAG	AGCTAACAGA	GTGCTAAGT	ATGCGCTCAA	AGATACCGT	AGGTAGATA	TACCGAAGAT	TGCTAGATCT	TTCTATGAAC	TATTTGATG
701	GAAAGTGAT	TACAGGAGTC	TATTCATTGA	GTATGGGAA	GCTTTAGGCT	CAGTTTCAAC	AGGAAGCAA	GCAGAAAGTT	TGTTGTAAA	TATATTATG
801	CAAGCTTATG	GAGCCGGTCA	AACAATGCTA	AGGTGGGTG	TCAATGCCAG	ATCATCTAAC	AACATAATGC	TAGGACATGT	GTCTGTCAA	GCTGAATTGA
901	AGCAAGTTAC	AGAGTTTAT	GATTTGGTGA	GAGAAATGG	TCTGAAATCT	GGGCTTTTAC	ATCTAAGACA	AGTCCAAAG	GCAGACTGT	TATCGTTGGC
1001	CAATTGCCCT	GATTTTGCTA	GTGTGTTCT	TGTAATGCT	TCAGGTTCTAG	GTATAATCGG	AATGTACAGA	GGAAAGAGTG	CAACACACGA	GCTATTTCT
1101	GCAGCAGAA	GTTATGCCAG	AGCTTAAAA	GAAAGCACAA	AAATCAACTT	CTCTCATTA	GGGCTCACAG	ACGAAGAAA	AGAAGCTGCA	GAACACTTCT
1201	TAAACATGAG	TGATGACAA	CAAGATGATT	ATGAGTAAT	AAAAAACTGG	GACAAAGTCAA	AATGTCTATC	CCTGAAGGAA	AGATATCCT	GTTCATGGGT
1301	ATGAAGCAG	CAAAAATAGC	AGAAGCTTTC	CAGAAATCAC	TAAAAAGATC	AGGTACAAA	AGAACCCAGT	CTATTGTAGG	GGAAAAAGTA	AACACTATAT
1401	CAGAACTCT	AGAGCTACCT	ACCATCAGCA	AACCTGCAG	ATCATCTACA	CTGCTAGAGC	CAAAATTGGC	ATGGGCAGAC	AGCAGCAGAG	CCACCAAAAC
1501	CACAGAAAA	CAAAACACCA	AAACACACGA	TCTGTTTCAA	GAAAGAGAAC	TCAATGAAAA	GAAATATACA	CCTTCCAGTG	ATGGGAAGAC	TCCCGCAGAG
1601	AAAAATCAA	AATCTCCAC	CAATGTAAAA	AGAAGTTT	CCTTCACATC	AAATGAACCA	GGAAATATA	CCAAACTAGA	AAAAGTCC	CTAGATTGCT
1701	TCTCAGACAA	TGAGGAAGAA	GACGCAGAGT	CCTCAATCTT	AACCTTTGAA	GAGAGAGACA	CATCATCACT	AAGCAATTGAG	GCTAGACTAG	AATCAATAGA
1801	AGAGAAGCTA	AGCATGATAT	TAGGACTGCT	TCGTACACTT	AACATTGCAA	CAGCAGGACC	AACGGCTGCA	AGAGATGAA	TCAGAGATGC	AATGATTGGT
1901	ATAAGAGAG	AACTANTAGC	AGAAATATA	AAAGAAGCAA	AGGAAAAGC	AGCTGAATG	ATGGAAGAGG	AAATGAATCA	AGGTCAAAA	ATAGGTAATG
2001	TCAGGTGTA	ACTAACCGAG	AAGGCAAAAG	AACTTAATA	AATTTGTA	GACGAGAGCA	CAAGCGGTGA	ATCAGAAGAA	GAAGAAGAAC	CAAAAGAAAC
2101	GCAGATAAC	AATCAAGGAG	AGATATTTA	CCAGTTAATC	ATGTAGTTA	ATAAAATAA	ACAATGGGAC	AGTCAAGAT	GGATCCTAT	CTAGTGACA
2201	CTTATCAAGG	CATTCCCTAC	ACAGCTGCTG	TTCAGTTGA	TCTGGTAGAA	AAAGACTTAC	TACCAGCAAG	TTTGACAATA	TGGTTTCCTC	TATCCAAGC
2301	CAACACACCA	CCAGCGGTTT	TGCTCGATCA	GCTAAAGACC	TTGACAATAA	CAACTCTGTA	TGCTGCATCA	CAGAATGGTC	CAATFACTCA	GGTAAATGCA
2401	TCAGTCCAGG	GTGCTGCTAT	GTCTGACTT	CCCAAAAAT	TCGAAGTAA	TGCAACTGTG	GCACCTGATG	AATACAGCAA	ACTTGACTTT	GACAAGTTAA
2501	CGGTTGCGA	TGTTAAACCA	GTTTATTGA	CAACCATGAA	ACCATATGGG	ATGGTGTC	CAATTTGAG	TTCAAGCCAA	TCAGTTGGCA	ACAAGACACA
2601	TGATCTAAT	GCACTGTGTG	ACTTCATGGA	CCTAGAGAA	AATATACCTG	TGACATAACC	AGCATTCATA	AGTCAGTTT	CAATCAAGA	GAGTGATCA
2701	GCCACTGTTG	AGCTGCAAT	AAGCAGTGAG	GCCGACCAAG	CATTAAACACA	AGCCAAAAT	GACCCCTATG	CAGGACTAAT	CATGACTCAT	ACCATGAACA
2801	ATCCAAAAGG	TATATTCAAG	AAACTAGGAG	CTGGAACACA	AGTGATAGTA	GAGCTAGGGG	CATATGTTCA	AGCCGAGAGC	ATCAGCAGGA	TCTGCAAGAG
2901	CTGAGTCCAC	CAAGGAACAA	GATATGTACT	AAAATCCAGA	TAAATAAATC	TGTCCTAATC	AATAATTGCT	TATATAATCT	TAAAGATCAA	TGAGCTTATT
3001	ATTATAGTTA	TATAAAAAA	TTAGAACTT	GGAAGGTATT	AATAGAAAGC	GGGACAAAGTA	AAAATGCTTT	GGAAAGTGAT	GATTATCAT	TGTTACTCA
3101	TACACCTCA	GCACGACTA	AGGAAGTT	ATTTAGAGA	ATCATGTAGT	GACTATAACT	AAGTATCTCT	CAGTGTTTTA	AGACAGGTT	GGTACACCAA
3201	TGCTTTTACA	TTAGAGTTG	GTGATGTTGA	AAATCTTACA	TGTACTGATG	CTCTAGCTT	AATCAAAACA	GAACTTGACC	TAAACAAAAG	TGCTTAAGA
3301	GAACTCAAAA	CAGTTCTGCT	TGATCAGTTA	GCGAGAGAG	AACAAATGA	AAATCCAGA	CAATCAAGGT	TTGCTTAGG	TGCATAGCT	CTTGTGTTG
3401	CCACAGCAGC	AGCAGTCACA	GCAGGCATTG	CGATAGCCAA	AACCATAGG	CTTGAGAGTG	AAGTGAATGC	AATCAAAAGT	GCTCTCAAAA	CAACCAATGA
3501	GGCAGATATCC	ACACTAGGAA	ATGGAGTGCG	AGTCTAGCC	ACCGCAGTAA	GAGAGCTGAA	AGAATTTGTG	AGCAAAAACC	TGACTATGTC	AATTAACAAAG
3601	AACAATGTC	ACATTGCTGA	TCTGAAGATG	GCTGTAGCT	TCAGTCAATT	CACAGAGA	TTCTTAATG	TTGTGCGCA	GTTTTCAGAC	AATGCAGGAG
3701	TAAACACCAG	AATATCATTG	GACCTAATGA	CTGATGCTGA	GCTGGCCAGA	GCTGTATCAT	ACATGCCAAC	ATCTGCAGGA	CAGATAAAAC	TAATGTTAGA

Fig. 39A

HMPV strain 75 (continued)

3801	GAACCGTGCA	ATGGTGAGGA	GAAGAAGGATT	TGGAATCTTG	ATAGGGGTCT	ACGGAAGCTC	CGTGATTTAC	ATGTCACGC	TGCCGATCTT	TGGTGTGATA	3900
3901	GATACACCTT	GTGGGATAAT	CAAGGCAGCT	CCCTCTTGTT	CAGAAAAAGA	TGGAACCTAT	CTTTGCTCTC	TAAGAGGGA	TCAAGGGTGG	TATTGTAAAA	4000
4001	ATGCAGGATC	CACTGTTTAC	TACCCAAATG	AAAGAAGCTG	CAGAAACAAG	GGTGATCATG	TTTTTTTGTA	CACAGCTGCA	GGGATCAATG	TTGCTGAGCA	4100
4101	ATCAAGAGAA	TGCAACATCA	ACATATCTAC	AACCAAGCTG	CCATGCAAAAG	TCAGCACAGG	AAGACACCTT	ATCAGCATGG	TTGCATCTATC	ACCTCTCGGT	4200
4201	GCTTTGGTGG	CTTGCTACAA	AGGGGTTAGC	TGTTCAATTTG	GCAGTAATCG	GGTTGGAATA	ATCAACAAC	TACCTAAAGG	CTGCTCATAC	ATAACTAAC	4300
4301	AGGACGCAGA	CACTGTAAAC	ATTGACAACA	CTGTGTATCA	ACTAGCAAAA	GTTGAGGGTG	AACAGCATGT	AATAAAGGG	AGACCAAGTT	CAAGCAGTTT	4400
4401	CGATCCAATC	AAGTTTCTTG	AGGATCAGTT	CAATGTTGGC	CTTGATCAAG	TCCTTGAAG	CATTGAAAAC	AGTCAAGCAC	TAGTGGACCA	GTCAAAACAA	4500
4501	ATTCTGAACA	GTGCAGAAA	AGGAACACT	GGTTTCATTA	TTGTAATAT	TTTGATTTGCT	GTCTTGGGT	TAACCATGAT	TTCAGTGAGC	ATCATCATCA	4600
4601	TAATCAAAAA	AACAAGGAAA	CCACAGGGG	CACCTCCAGA	GCTGAATGTT	GTTACCAACG	CGGTTTTTAT	ACCGCATAGT	TAGTTAATTA	AAAAATGGGA	4700
4701	CAAAATCATCA	TGCTCTGTA	AGCTCCATGC	AAATATGAAG	TACGGGGCAA	GTGCAACAGG	GGAAGTGAGT	GCAAAATCAA	CCACAATTAC	TGGAGTTGGC	4800
4801	CTGATAGGTA	TTTTATTGTA	AGATCAAAAT	ATCTCTGAA	TCAGCTTTTA	AGAAACACTG	ATAAGGCTGA	TGGTTTGTA	ATAATATCAG	GAGCAGGTAG	4900
4901	AGAAGACAGG	ACTCAAGACT	TTGTTCTTGG	TTCTACTAAT	GTGGTTCAAG	GGTACATTGA	TGCAATCAAC	GGAATAACAA	AGGCTGCAGC	TGCTATAGT	5000
5001	CTACATRACA	TAATAAACA	GCTACAGAA	ATAGAGTAA	GACAGGCCAG	AGATAATTAG	CTTTCTGACA	GAAATAACAT	GGCACTTCAC	AACTTGATAT	5100
5101	TATCTATAT	GGAGATGAGC	AAACTCTCTG	CATCCCTGAT	TAATAACCTA	AAGAAACTAC	CAAGAGAAAA	ACTGAAAAAA	TTAGCGAAAT	TAATAATTGA	5200
5201	TTTATCAGCA	GGAACTGATA	ATGACTCTTC	ATATGCCCTG	CAAGACAGTG	ATGGGATAGC	AAAAATCACAC	ACCAATATTT	ACAGTTTGTTA	TTTAGAAAA	5300
5301	GGCAGATGAT	ATGATATGGA	CACACANAAG	ATTAAAAAG	ACACTGTCTG	AAATGGGATA	ATGCAATAGA	AAACATTAGA	TGCTATAAAA	AGTGACGGAT	5400
5401	ATAGAAATAA	TATATGTTAA	AGCTTACTTA	AGTTAGTAA	AAATAAATAG	AAATTTGCTTA	TTGCATCAAA	ACCGACATTTG	GCCTTATTGA	CGTCTTCAC	5500
5501	CCTCAGAAAC	ATGTAATCAA	CTCAAAAAA	TAATAAAAA	ACACTCAGGT	GTCAATTTAA	AAATGAATCA	GACAAAAAGG	ACACAAGCT	AAATACCACA	5600
5601	AGTAACAAT	ACTGTCAACT	ATCAAAAAAGT	AGAAATAAT	TTGCAGGCAT	AAGGCTGATT	CAGAAACACA	CCAACCTCTG	CACAAAAGAC	AGAGATACCT	5700
5701	TCAACAACA	TCAGACCCAT	TCCTGATCTA	ATGCAAGTAC	AGTACTGAA	TTATGTTTTG	GGTCTATGAA	TTCAACAAT	ACAGACTGTG	AAGAACCAC	5800
5801	GTGGAGAAAT	ACACACGAAT	CAATGCACAA	ATATAAAAA	ATATAAGTTC	CAGAGTGTC	CCGTCCACAT	ACAACCGAGT	GGTGGTGCCA	TTATCTTTAA	5900
5901	AGTTCTATGC	GACAAAAAGT	CAAAAACCA	GACAAAAATCA	CATAGGAAG	TATTAATATA	ATAGTCTAGT	TATTTAAAA	CTCTAAATAT	TGCTAGACT	6000
6001	GAGAAACTC	AGTTTTCAAC	ATTAAAAATCA	GAACAAATCA	TATCTAGATC	CAAAACCCAC	TATATAACAA	TCACTGAGTA	ATACAAAAA	AGAAAATGGG	6100
6101	TCACAACACC	CTGCGGTGAT	ATGCAATAAT	CAATGGGTCAA	ACCCTGTTG	TCAAAGCMAA	GATGAAAAAC	CGTATAAGAA	GTAGCAAGTG	CCATAGAAAT	6200
6201	ACAAAGTGCC	ATGGAAGCAA	GAGTGGAGAA	CATTGCGGCA	ATAGACATGT	CCITTTAATC	ATTGATCATG	CAACATCAAA	AAACATGACC	AAAGTGGAACT	6300
6301	GCTACACTGA	TCCTTATTGG	ATCAACAGCA	CCAAGTATGG	CACTCAACAC	TCTGCAGCAG	ACCCAAACAC	CAACCCCAAT	CCACAGCAGG	CAACACAGCT	6400
6401	ACTGTGTCAA	CATGCCGCGG	GTAGAACCAC	GCAAGAAGAC	CCCAATGACC	ACACCCGAGG	AAAAAGCCAA	CCAGAGCAAC	AACCAAAAA	GAAACCCACA	6500
6501	GACCAACAG	GATTCACAT	CAACACTGCT	GAGATCAACC	CAACCCCAAC	ACACAGGAG	AACCTCAACA	CCAGATGCAA	CAGTCTCCCA	GCAAAACACA	6600
6601	GACGAGCACA	CAACACTGCT	GAGATCAACC	CAACCCCAAC	CAACCCCAAC	ACTAGCAATG	GAAGAGAGGC	AACCAACAAC	TCTGCCAGAT	CCAGAAACAA	6700
6701	CTGGAACAC	AGCACAGCT	GCAACCCCAA	CACTCAACAC	CACCAACCAA	CCCAATCACA	ACATACACAG	AAAAAGCACTA	CAAAAGCACTA	CAACACAGCT	6800
6801	TGCCACAAC	CAAGCAGCG	ATCAAAACAC	CCAGCAGCA	GACCCAAAGT	CAAAAACCTA	GAAGAATTA	CCATGAAAC	TTTGAACCTA	CAAAAGCACTA	6900
6901	ATCATCTTCT	CAAGTAGTTA	ACAAAAAACC	TATAAATAA	CCATGAAAC	7001	ATGAATTTGT	TGACGGTATA	TACTAATGAA	ATGCAATCTG	7100
7001	ATGAATTTGT	TGACGGTATA	TACTAATGAA	ATGCAATCTG	TTTGGTATCC	7101	CAAAATAACA	TGGATCCGTT	TTGTTGAATC	AGTGTCTTCC	7200
7101	CAAAATAACA	TGGATCCGTT	TTGTTGAATC	AGTGTCTTCC	TCTATCTTCC	7201	GCTCATGCTT	TTTGAAGAAG	CCCTATCTTA	AAAAGATAA	7300
7201	GCTCATGCTT	TTTGAAGAAG	CCCTATCTTA	AAAAGATAA	CACCTGCTAA	7301	CATGACCCAA	ATGAAGATAT	CAGATTATAA	AGTGGTTGAA	7400
7301	CATGACCCAA	ATGAAGATAT	CAGATTATAA	AGTGGTTGAA	CCAATTAAAT	7401	AAACAAATCT	TAAACAAGAG	TAAACCAATT	AGTCCCTCAA	7500
7401	AAACAAATCT	TAAACAAGAG	TAAACCAATT	AGTCCCTCAA	AAATTAAGTAT	7501	TTAATTTTAT	AGATGTGGAG	TTTTATACCC	TTTATACCCG	7600
7501	TTAATTTTAT	AGATGTGGAG	TTTTATACCC	TTTATACCCG	CAATTTGGTTT	7601	AGTAATAAGA	ACTGGTTCAA	TTTTATGCG	ATCATAGGC	7700
7601	AGTAATAAGA	ACTGGTTCAA	TTTTATGCG	ATCATAGGC	AAGTTAGTTT	7701	GTAAGTTTTT	TCACATATAA	CCAACCTGTTA	ACATGGAAAG	7800
7701	GTAAGTTTTT	TCACATATAA	CCAACCTGTTA	ACATGGAAAG	ATGTCATGTT						

Fig. 39B

HMPV strain 75 (continued)

7801 AAAATCAAGA AGGACTAGGA TTAGAAGTA ATCTACAAGG TATGTTAACT
7901 AGGTTCTCA CTAGTGAAG AGTTCGAAG TTATTATTG AGTGAAATTC
8001 TTAATGGGT TGACTGAACA ATTATCAATG TTGAAGCTA AGCAACATG
8101 TAGTACTTAA ATTATTAGG GACACTTGA AAGATATAA ATTATTAAIT
8201 TGGACACCT ATGGTAGATG AGAGGGAAC AATGGATGCT GTTAAATTAA
8301 GGAGCAITTA TACTAGAAT TATAAAGGG TTGTAGATA ATAAATAAAG
8401 ATTTCAAGC TAAAGTTAC CTTAGCTAG TTAGCTAAG TGTAACAAGT
8501 AAAAACCAAT CTTGAGATG TATTAAATGA TAAAGCAATA TCTCCACCAA
8601 AAAATCAAT ATTTAGAAG GGTCTTCAAT GCAAGTGACA GTCAAGGAAC
8701 ACCTCAACG TTATGTAAC TAAACAAGAGT ATCTAAATGA CAAAGACCAC
8801 TGCATGCAA CCTGGCAAC AAGACCAAT ACAGATACTA GCCGAGAAC
8901 GGTACTTGG ATCTCCAAAG AATTATGGA ATGAATCAG AACTTTCTTC
9001 CCATAGTAAC AGACTAAGT AAATTCATC AAGCCTTAG ATATGAACCC
9101 ATTTGTTGG TTACATCTTA TTGTTCCAT GACCACATG ATATGTGCAT
9201 GAAGAGCAA GTGGCTATA CAGATACCAT ATGGGAGGA TTGAAGGTTG
9301 CTGTTAAGC TCGTTGTGAG ATGACCTCTC TATTAAACGG AGCAATCAAA
9401 AAAGCAGAT TATAGTTAG CAATTAAAT GCTTAAAGG ATAAGAGATG
9501 AGAGATCTC AATTATAAG TAAGTGAT TCAATCTAGG GGTCTATGCA
9601 TACTAGATGA CATTAAACT AGTGCAAT ATCATGATG CATGTGGAT
9701 TTCTGCTG TATACTTAT ACATGATGA GTCAAAACAG CATCCGTTAG
9801 AGATTTTGG AGCTGAAGAA AGAAATGAT GTGGTTGACC TATGGATGAA
9901 TTTCAAGAG GACTCTGTG TCTTGACTG TGAACATCAG CCATGTGGAT
10001 CTTTAAAGCC TTATTATCTA TAGAAAGAA TGAACGTGCT ACATTAAACA
10101 ACAAGTGATA TAAATAGAAC AGCAGTTACT AGCATACTGA GTCTATCTCC
10201 AAGTAGGGAT CATTGCAGAC AACATAACAC CTGTTTATCC TCACGGATTG
10301 TATGATATCA GGTACAAAGT CTATAACTAA CTTATTGCGAG AGAACATCTG
10401 TTAGGTTGT TATCTAGGAT ATTGTCAGTA ATAATTAAATA GTATAGAAAT
10501 TGAGAGAAA ATCATGGAA ATATGGAAA TAGTAGGAGT GACATCTCCA
10601 AGGAATAAT ATTGAAAAT TCAGTACTGA CAAGACCACA AGAGGTGAGA
10701 GTTCTGTTT ATAACAGACA AATCTTTCA AAACAACAAA TAGGCAACT
10801 GAAGATGCT CAATAAGATG CCATAGGAA GTTTAGTGA TTAGCTATAA
10901 GTTACTGTT AGTAGCAGAC CAGTGAAT CCCAGTTCT GTTCCAGCTT
11001 AGTAGAGGT TCGGAACGA AGACATTAAT CTAGTGTTC AAAATGCAAT
11101 GCCCAACA ATTAGTCTTA ATCCCCAAT TAGAAGAT AGATATTATG
11201 AACCTCCGAT CAACACATCT TCAGTCTGTA CAAATAGAC ATATTACAC
11301 TTAATAAGA GAGAAAACA TTCCATGGA AATAATTAA TTGAATCTTT
11401 TAGAAAACA TATCTTTAGG AAAGACTGG GTGATGGGT CATATCAGAT
11501 TTTATGTAGT TGGGATCCC AAGGAAAAA TGTAAAGAT GAAGATATAA
11601 ATGTTGAGCA AGTCAATGTT TGAATCAAG GTCAAAAAA GAATAATGTT
11701 GGTTTATAGA GCAGTTAAGA GTAGTAGAAT TGCATGAAGT ACCCTGGATT

Fig. 39C

HMPV strain 75 (continued)

11801	GCAGTTAATA	GAACAAAGTC	TATCTTTAAG	AATAACTGTT	TTGAATTATA	CACACATGGC	ACATGCTCTT	ACACGATTAA	TTAGGAAGAA	ATTGATCTGT	11900
11901	GATAATGCAC	TCTTTAATCC	AAGTTTCATCA	CCAAATGTTT	GICTAACTCA	AGTTATTGAT	CCTACAACAC	AGTAGACTA	TTTTCTAAG	GTAATATTG	12000
12001	AAAGGTTAAA	AAGTTATGAC	ACCAGTTCAG	ACTACAACAA	AGGGAAGTTA	ACAAGAAATT	ACATGACATT	ATTACCATGG	CAGCAGTAA	ACAGGTATA	12100
12101	TTTTGTCTTT	AGTTCAACAG	GATGTAAAT	CAGCTTGAAG	ACATGCATCG	GGAAATTGAT	AAAGGACTTA	AACCTTAAGG	TTCTTTACTT	TATTGGAGAA	12200
12201	GGAGCAGGTA	ACTGGATGGC	AAGAACAGCA	TGTGAGTATC	CTGACATAAA	ATTGTATAT	AGGAGTTTAA	AGGATGATCT	TGATCACCAT	TACCCATTAG	12300
12301	AATATCAAG	GGTAATAGGT	GATTTAATA	GAGTAATAGA	TGGTGGTGAA	GGATTATCAA	TGGAGACCCAC	AGATGCAACT	CAAAAGACTC	ATTGGGACTT	12400
12401	GATACACAGA	ATAAGTAAAG	ATGCTTTATT	GATAACATTTG	TGTGATGCAG	AATTCAAAA	CAGAGATGAT	TTCTTTAAAA	TGGTAAATCT	TTGGAGAAAA	12500
12501	CATGTATTAT	CATGTAGNAAT	CTGTACAGCT	TATGGAACAG	ATCTTTACTT	ATTGCAAAAG	TATCATGCCA	CGGACTGCCA	TATAAGTTA	CCATTTTTTG	12600
12601	TAAGGTCTGT	AGCTACTTTT	ATTATGCAAG	GAAGCAAAAT	GTCAGGATCA	GAATGTTACA	TACTTTTAAC	ATTAGGTCAAT	CACAATAATC	TGCCATGTCA	12700
12701	CGGAGAAATA	CAAAATTTCCA	AAATGAGAAAT	AGCAGTGTGT	AATGATTTCC	ATGCCCTCAA	AAACTAGAC	AACAAATCAA	TTGAAGCAA	CTGCAATCT	12800
12801	CTTCTATCAG	GATTAAGNAAT	ACCAATAAAC	AAAAAAGAGT	TAAATAGACA	AAAGAACTG	TTAACACTAC	AAAGCAATCA	TTCTTCCATA	GCAACAGTTG	12900
12901	GCGGAAGTAA	GATTATAGAA	TCCAAATGGT	TAAAGAATAA	AGCAAGTACA	ATAATTGATT	GTTTAGAGCA	TATCTTGAAT	TCTCCAAGAG	GTGAATTAAA	13000
13001	CTATGATTTT	TTTGAAGCAT	TAGAGAACAC	ATATCCCAAT	ATGATCAAGC	TTATAGATAA	CCTGGGAAAT	GCAGAGATAA	AAAACTAAT	CAAAGTTACC	13100
13101	GGGTATATGC	TTGTGAGTGA	GAAGTAATAA	TAATAATAAT	AATCAACCAT	AATCTCACAC	AACTGAGAAA	ATGATCATCT	AACAGTTTAA	TTGACCATTA	13200
13201	GTAAATTAAA	AATTATAAAT	TAGTAACATA	TTGATAAAAA	ATAAGAAAAT	GAATTTGAAT	GTATACGGTT	TTTTTGCCGT			13280

Fig. 39D